DOCUMENT RESUME

ED 289 675 SE 048 760

AUTHOR McNutt, Nan
TITLE Early Fishing Peoples of Puget Sound. Ocean Related Curriculum Activities. Revised Edition.
INSTITUTION Pacific Science Center, Seattle, Wash.; Washington Univ., Seattle. Washington Sea Grant Program.
SPONS AGENCY National Oceanic and Atmospheric Administration (DOC), Rockville, Md. National Sea Grant Program.; Washington Office of the State Superintendent of Public Instruction, Olympia.
PUB DATE 83
NOTE 135p.; Drawings may not reproduce well.
AVAILABLE FROM Pacific Science Center Giftshop, 200 2nd Ave. North, Seattle, WA 98109 ($6.00).
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *American Indian Culture; Anthropology; Elementary Education; *Elementary School Science; Environmental Education; *History Instruction; Interdisciplinary Approach; Marine Biology; *Marine Education; Oceanography; *Science Activities; Science and Society; Science Curriculum; Science Education; *Science Instruction; Social Studies; Water Resources
IDENTIFIERS *Project ORCA; Washington

ABSTRACT

The ocean affects all of our lives. Therefore, awareness of and information about the interconnections between humans and oceans are prerequisites to making sound decisions for the future. Project ORCA (Ocean Related Curriculum Activities) has developed interdisciplinary curriculum materials designed to meet the needs of students and teachers living in Washington State. Each activity packet provides a the teacher with a set of lessons dealing with a particular topic related to the oceans. Included are student worksheets, lesson plans, a vocabulary list, and a bibliography. This unit, designed for the juniior high level, presents the early Puget Sound Indian culture, emphasizing the importance of the water environment to their way of life. It stresses the resourcefulness of these people in inventing the technology to utilize the natural environment for all their needs. It is designed to familiarize students with geography, climate, and the natural resources of Puget Sound and tribal names and locations via maps and charts. Stories are included as a teaching device, a method similar to the Indians' teaching practices. A study of early fishing technology comprises a major portion of the unit. There are also activities involving the various methods of acquiring, processing, and using natural materials such as cedar bark and wood to make rope, fishing lines, and bent wood hooks. (TW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

EARLY FISHING PEOPLES OF PUGET SOUND

ED289675

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

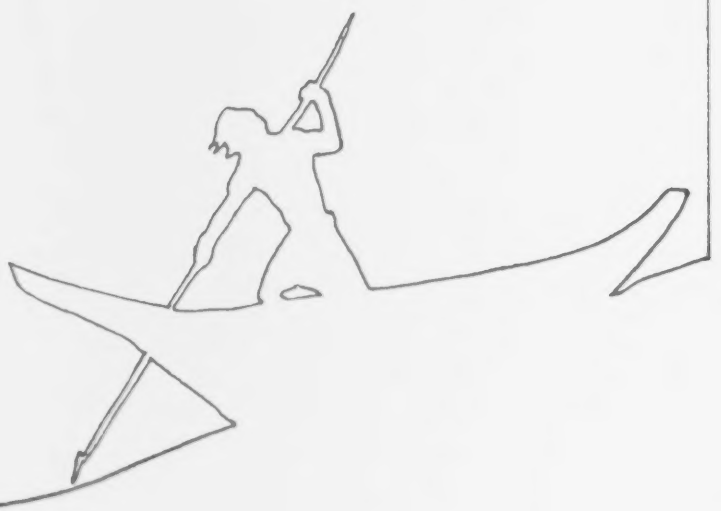
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Andrea Marrett

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."



SE 048 760

ORCA

OCEAN RELATED CURRICULUM ACTIVITIES

PACIFIC SCIENCE CENTER / SEA GRANT
MARINE EDUCATION PROJECT

NAN McNUTT, AUTHOR, REVISED EDITION
ANDREA MARRETT, MANAGER

BEST COPY AVAILABLE

ORCA PUBLICATIONS

ELEMENTARY

High Tide, Low Tide (4th Grade)
Life Cycle of the Salmon (3rd - 4th Grade)
Waterbirds (4th - 5th Grade)
Whales (4th - 6th Grade)

JUNIOR HIGH

Beaches
Beach Profiles and Transects
Early Fishing Peoples of Puget Sound
Energy from the Sea
Literature and the Sea
Tides
Tools of Oceanography

SENIOR HIGH

American Poetry and the Sea
Marine Biology Activities
Marine Biology Field Trip Sites
Marshes, Estuaries and Wetlands
Squalls on Nisqually: A Simulation Game

C Copyright by Pacific Science Center, 1980
Revised, 1983

This activity packet was produced at the Pacific Science Center in cooperation with Washington Sea Grant and Office of the Superintendent of Public Instruction. Permission to reprint these materials is subject to approval by the Pacific Science Center. For permission or further information contact the Pacific Science Center, 200 Second Avenue North, Seattle, WA (206) 625-9333.

PROJECT ORCA

The ocean? It's 2 miles away; it's 200 miles away; it's 2000 miles away. What does it matter to me? For those students who live close to the ocean, a lake or a stream, the effect of water might be more obvious. For the student who lives on a wheat farm in the arid inlands, the word ocean is remote. It may conjure up images of surf, sand and sea gulls, experiences far removed from their daily lives; or it may have no meaning at all. Yet for that same youngster, the reality of the price of oversea wheat shipments or fuel costs for machinery are very real. The understanding of weather and its effects on the success or failure of crops is a basic fact of everyday life. The need for students to associate these daily problems with the influence of the marine environment exists. It requires exposure to ideas, concepts, skills and problem solving methods on the part of the youngsters. It also requires materials and resources on the part of our educators.

The goals of ORCA (Ocean Related Curriculum Activities) are: 1) to develop a basic awareness of ways in which water influences and determines the lives and environments of all living things; and 2) to develop an appreciation of the relationship of water to the study of the natural sciences, social sciences, humanities and the quality of life.

ORCA attempts to reach these goals by: 1) developing interdisciplinary curriculum materials designed to meet the needs of students and teachers living in Washington State, 2) developing a marine resource center, and 3) providing advisory services for marine educators. In conjunction with these efforts, ORCA is coordinating communication among educators throughout the state and the rest of the nation.

The curriculum materials are developed to be used in many areas including the traditional science fields. They consist of activity packets which fit existing curricula and state educational goals and are designed for use as either a unit or as individual activities.

The ocean affects all our lives and we need to be aware and informed of the interconnections if we are to make sound decisions for the future of the earth, the ocean and our own well being. We hope that through Project ORCA, teachers will be encouraged to work together to help students understand and appreciate the ocean and the world of water as a part of our daily existence.

ACKNOWLEDGEMENTS

The Ocean Related Curriculum Activities (ORCA) are the product of a cooperative effort between many people and organizations. The primary responsibility for the program belongs to the Pacific Science Center, where the materials were developed. Financial assistance and technical support were provided by the National Oceanic and Atmospheric Administration (NOAA) Sea Grant, held by the University of Washingtion.

TRIAL TEACHERS

Trial teaching was done through a Western Washington University workshop entitled "The Sea and the People, the Indians of the Northwest." I wish to thank the teachers, consultants, and other participants who shared in that experience.

CONSULTANTS

A variety of people were asked for information, advice, and help during the development of the curriculum. Their support and interest were greatly appreciated.

The people who provided technical assistance and expertise were:

Dr. William W. Elmendorf, Professor Emeritus, University of Wisconsin
Vi Hilbert, Salish language instructor, University of Washington
Bruce Miller, Skokomish Tribal Center
Dr. Sally Snyder, Ph.D., Anthropologist

The aid, advice, and encouragement of the following educators was essential to the successful development of this project:

Laurie Dumdie, Pacific Science Center
Barbara Russell, Sunnybeam School
Sally Luttrell-Montes, Pacific Science Center

A sincere thank you to two consultants who gave extensive time, support, and special expertise:

Alyn Duxbury, Ph.D., Assistant Director of New Programs, Division of Marine Resources, University of Washington
David Kennedy, Supervisor of Science, Environmental Education and Marine Education, Office of the Superintendent of Public Instruction

ADVISORY COMMITTEES

The Marine Education Project was reviewed annually by the Sea Grant Site Evaluation Committee. We thank them for their advice and support.

Continuing guidance for the program direction was provided by the Pacific Science Center Education Committee, the members of which are:

Charles Hardy, Director of Curriculum, Highline School District
Barbara Akers, Elementary School Volunteer
Laurie Austin, Member, Board of Directors
June Dilworth, Office of Special Programs, Seattle Pacific University
David Kennedy, Supervisor of Science and Environmental Education, Office of the State Superintendent of Public Instruction
Jerry Kent, Science Supervisor, Renton School District
Paul Moreau, Elementary teacher, Seattle School District
Lonnie Pithan, Elementary teacher, Monroe School District
Hal Reasby, Superintendent, Edmonds School District
Barbara Schultz, High School teacher,Shoreline School District
Robert Steiner, School of Education, University of Puget Sound

STAFF

The production of this book could only occur with the immense help of staff members who were instrumental in creating, developing, and supporting this project.

The efforts of all people responsible for graphics, design, and paste-up are greatly appreciated:

Mary Bass, paste-up
Susan Lundstedt, graphics
Valene Starrett, cover design

The necessary job of reviewing, editing, and typing takes time and patience. Those who handled that task were:

Mary Bass, editing and typing
Maxine Fischer, typing

Finally, I wish to thank all the people who have supported the Marine Education Project during the past four years.

Andrea Marrett
Manager, Marine Education Project
Pacific Science Center
200 Second Avenue North
Seattle, WA 98109

EARLY FISHING PEOPLES OF PUGET SOUND (22 DAYS)

ABSTRACT: This unit presents the early Puget Sound Indian culture, emphasizing the importance of the water environment to their way of life. It stresses the resourcefulness of these people in inventing the technology to utilize the natural environment for all their needs.

The student is familiarized with geography, climate, and natural resources of Puget Sound and tribal names and locations via maps and charts. Stories are included as a teaching device, a method similar to the Indians' teaching practices.

As fish were one of the most important natural resources, a study of early fishing technology comprises a major portion of the unit. There are activities comparing fishing then and now, and actually making Indian hooks and lines following authentic methods as closely as possible.

Like fish, the western red cedar was a valuable natural resource. There are activities involving the various methods of acquiring, processing, and using cedar.

SUBJECT AREAS: Social studies, anthropology, history, science

GRADE LEVELS: Junior High

WRITTEN BY: Revised edition: Nan McNutt

EARLY FISHING PEOPLES OF PUGET SOUND

OBJECTIVES:

Following the activities in this packet, the student will demonstrate his/her understanding of:

Puget Sound Environment by:

1. identifying and locating on a map major geographical features and cities and towns in the region.
2. identifying major natural resources of the area.
3. listing some of the fish of the region.

Early Fishing Peoples' Culture by:

1. identifying and locating on a map the Indian groups.
2. describing the difference between the Indians' summer and winter life styles.
3. explaining the relationship between natural resources cycles and the lifestyle of the early people.
4. describing the First Salmon Ceremony and explaining its origins among the Skokomish people.
5. explaining the relationship between spirit power and an individual.

Fishing Technology of the Early Fishing Peoples by:

1. demonstrating the technique used to make a bent wood fish hook.
2. explaining the relationship between composition and construction of a rope and its strength based on a series of experiments.
3. demonstrating the technique for making rope and line.
4. analyzing and describing a variety of early Indian fishing technologies.

Human Invention by:

1. explaining the relationships between need, the available resources, and technology.

Organizational Skills by:

1. keeping a notebook of materials and assignments.
2. summarizing learning experiences in writing.

TABLE OF CONTENTS AND OVERVIEW

PAGE

ACTIVITY 1: FISHING TODAY (2 DAYS) 5

Develops the idea that fish are an important natural resource in this region and that modern fishing technology is complex and elaborate.

ACTIVITY 2: THE PLACE AND THE PEOPLE (8 DAYS) 13

An introduction to Puget Sound's geography and early inhabitants, it includes mapping experiences, identification of early Puget Sound tribal groups, and Indian legends.

ACTIVITY 3: FISHING IN THE PUGET SOUND AREA LONG AGO (5 DAYS) 35

The activity develops the concept that invention is based on a peoples' need and the available resources. Early Indians had a highly successful fishing technology utilizing natural resources.

ACTIVITY 4: UNMAKING A ROPE (2 DAYS) 61

Students perform a series of experiments with assorted kinds of rope and compare Indian rope making techniques to those used today.

ACTIVITY 5: CONSTRUCTION OF HOOKS (5 DAYS) 69

Students make bentwood hooks and test their hypotheses as to what materials work best in constructing a hook.

EVALUATION VOCABULARY BIBLIOGRAPHY 91

EARLY FISHING PEOPLES OF PUGET SOUND

PLAN AHEAD LIST: Several weeks before starting this packet:

1. Order Burke Museum traveling kit (see Teacher Information Sheet, "Traveling Collections").
2. Order films and books.
3. Order cedar bark and check sources for other project materials (see Activity 4 and 5).
4. Plan and arrange for field trips.
5. Make overhead transparencies.
6. Make student copies of handouts.
7. Experiment yourself with those activities you plan to have the students do.
8. Read teacher background information.
9. Order posters (see Activity 1).

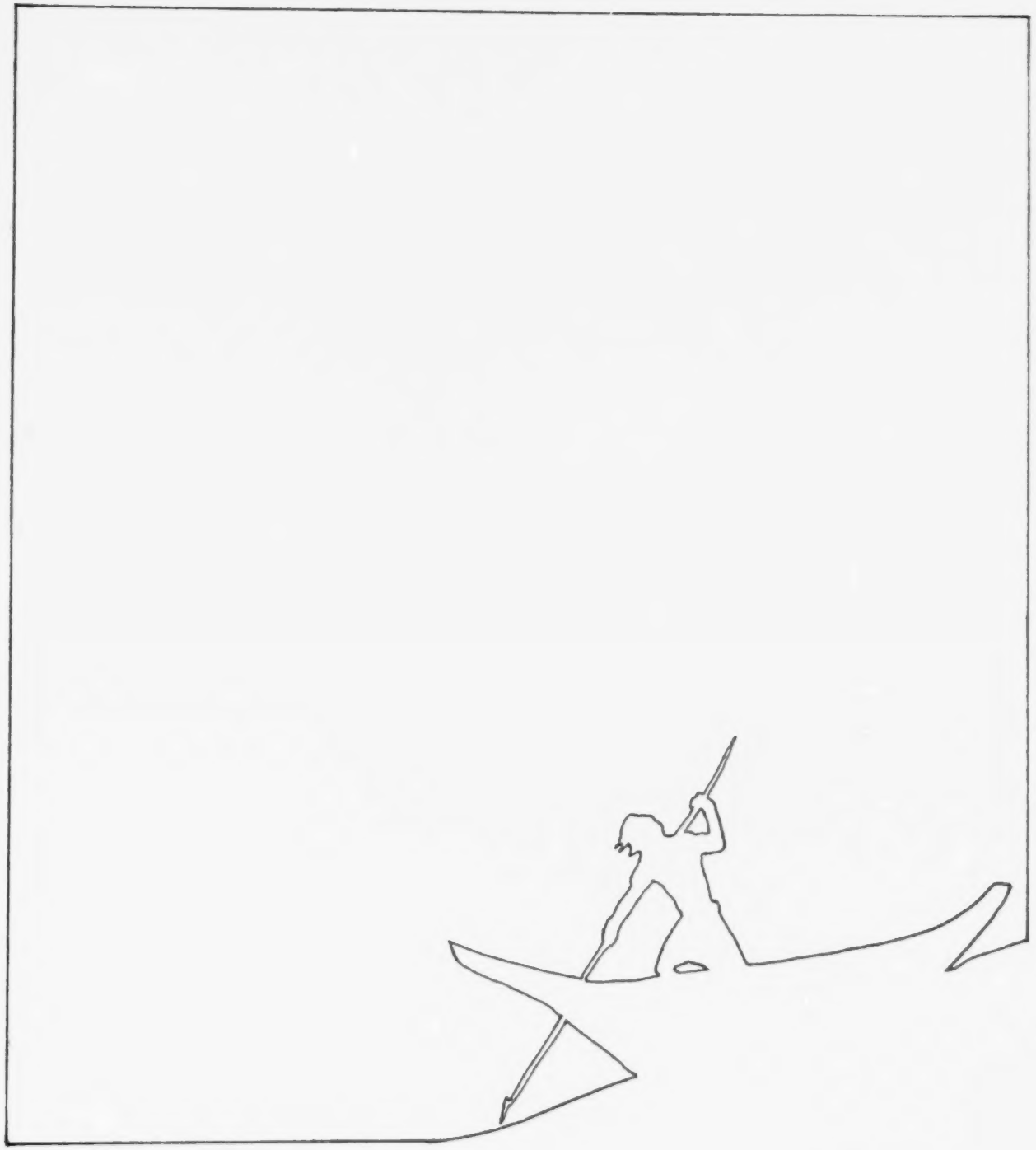
Possible field trips:

1. Gathering of natural materials.
2. Museums to visit (see list at end of book.)
3. Local fish ladders.
4. Local fish hatchery.
5. Local tribal center.

Possible sources of cedar bark:

Specialty Products Cedar Mill - Enumclaw
West Coast Orient - Tacoma
Buse - Everett
Seaboard Log Dump - Quindell

If these do not work out, call the Forest Service at 442-0446.



ACTIVITY 1:
FISHING TODAY
(2 DAYS)

ACTIVITY 1: FISHING TODAY (2 DAYS)

CONCEPTS:

1. People's lives are influenced by their environment.
2. Fish are an important natural resource in this region.

OBJECTIVES:

Following the activity the student will demonstrate his/her ability to:

1. identify fish as a major natural resource of this region.
2. list some common fish in Puget Sound.
3. explain the relationship between a people's way of life and their environment.
4. fill in a chart correctly with information about fishing gear.
5. analyze fishing gear as to its materials, construction and purpose.
6. generalize about modern fishing technology based on the analysis of gear.

TEACHER PREPARATION:

1. Teacher should read Teacher Information Sheet, "Common Fish in Puget Sound".

MATERIALS:

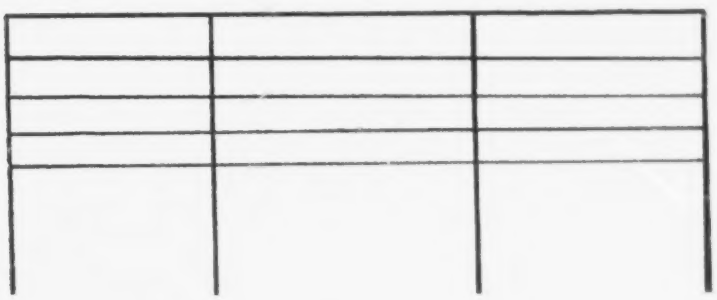
1. Teacher Information Sheet,"Common Fish in Puget Sound" and definitions of commercial fishing techniques.
2. Pictures of fish -- poster, Department of Fisheries and any others teacher can locate.
3. Student handout, "Fishing Today"
4. Variety of fishing gear supplied by students and/or teacher

PROCEDURE:

1. Lead a discussion to begin to establish the relationship between a people's way of life and their environment.

   a. Give a few examples, i.e. farmer and farm lands, businessmen and larger towns or cities. (Environment need not be restricted to natural environment. It can be social environment, too.)
   b. Have students give examples.
   c. Make a chart on the board - showing "People," "Environment," and "Lifestyle" (description).

PEOPLE + ENVIRONMENT = LIFESTYLE



d. If commercial fishermen have not been put on the above chart, do so now.
e. Bring discussion to a more personal level:

1) How many have fished?
2) Where? (rivers, lakes, Sound)
3) How and for what fish?
4) What gear and equipment?
5) Any relatives who fish commercially?

f. Allow time for "fish stories."

2. Lead a discussion on common fish in Puget Sound (from previous discussion and Teacher Information Sheet -- "Common Fish in Puget Sound").

a. List common fish on the board and students each keep a copy.
b. Display pictures of fish. (optional)
c. Discuss size, methods of catch, uses.
d. Include shellfish.

3. Lead a discussion of modern fishing technology.

a. Pass out student handout, "Fishing Today."
b. Explain the headings and instructions.
c. Referring to discussion of students' own fishing experience, list a few examples of modern gear on the board.
d. Ask students to bring fishing gear to class.

4. Bring in a variety of fishing equipment to examine. Have the students notice the different parts to each piece of equipment, i.e. screws, snaps, line, shaft of pole, etc.

Suggestions:		
	hooks	nets
	poles	bait
	lines	floats
	reels	clam shovels
	sinkers	crab traps
	lures	cleaning tools
	knives	"how-to-fish" books

5. From the chart have each student make some conclusions in writing about fishing technology. They should also include their personal perceptions of the relationship between a peoples' way of life and their environment.

EXTENDED ACTIVITIES:

1. Field trip to the Seattle Aquarium or Ballard Locks fish viewing areas
2. Discuss the life cycle of salmon. (See Teacher Information Sheet). Visit a salmon hatchery to see what they

look like, feel like, life cycles and technology required to maintain salmon population due to dams and other impediments to natural processes.

3. Highly recommended:
Assign students to read Fisherman on the Puyallup, a short, easy to read book, about a young Puyallup boy learning the art of drift fishing from his grandfather. It is set in modern-day Tacoma, but teaches how the Puyallup have been fishing for centuries and the respect they feel for the life of the river. It comes with a 15-page teacher's guide and is available from Daybreak Star Press, United Indians of All Tribes Foundation, Daybreak Star Indian Cultural-Educational Center, Box 99253, Discovery Park, Seattle, WA 98119. $3.75/copy.

LIST OF COMMON FISH IN PUGET SOUND AREA

FISH	MATURE SIZE LENGTH	WEIGHT	HABITAT AND LIFE CYCLE	METHOD OF CATCH
SALMON (5)				
Chinook	16-60"	2½-125 lbs.	Salmon live near the surface, often close to shore, and throughout main body of ocean. Pinks and chums move into ocean immediately after emerging from gravel. Sockeye, chinook, and coho spend first few years in spawning stream before emerging to ocean. They remain in open ocean until maturity when they return to same "birthplace" to spawn, and die.	Commercial gillnetting, purse seining, trolling; sport fishing with lures, flys
Coho	17-36"	3-30 lbs.		
Pink	14-30"	2-9 lbs.		
Sockeye	15-33"	1½-10 lbs.		
Chum	17-38"	3-45 lbs.		
HALIBUT (largest and most valuable bottom fish)	Males- 20-50" Females- 8 ft.	50-100 lbs. up to 500 lbs.	These flatfish live very close to or on the bottom of the ocean. They spawn in open water and currents scatter eggs.	Commercial bottom longlines; sport fishing with large baited hooks.
COD	up to 3'3"	50-60 lbs. (in heavily fished areas, only 8-10 lbs.)	These roundfish live near the bottom of the ocean. They spawn in ocean and eggs float free until hatching.	Commercial trawling (at about 250 fathoms), longline- often by accident while fishing for halibut.
FLOUNDER	12-36"	20 lbs.	These flatfish live near or on the bottom. Their eggs float free after spawning.	Commercial bottom trawling
HERRING (one of the world's most numerous and most famous fishes)	8-10"	3-4 oz. (10,000 fish per ton)	Herring travel in schools near the surface of the ocean. They spawn close to beaches, eggs laid on kelp.	Commercial purse seining

LIST OF COMMON FISH IN PUGET SOUND AREA (cont.)

FISH	MATURE SIZE LENGTH	WEIGHT	HABITAT AND LIFE CYCLE	METHOD OF CATCH
SMELT	5-12"	3-4 oz.	They live in open ocean entire life except briefly during spawning upriver. Spawning occurs along high tide line in sheltered coves and beaches, eggs laid in gravel.	Commercial small floater gillnets, dip nets, trawling: uses small 1" mesh, 12 ft. wide, used along river during spawning trip.
STEELHEAD TROUT	up to 46" (average 12 lbs.)	37 lbs.	Steelhead live 1-2 years in spawning streams before moving into ocean. They live in open ocean 2-4 years, then return upriver to spawn. Unlike salmon, steelhead often live after their first spawning period and migrate back to the ocean. They may return upriver and spawn 2 or 3 times before dying.	Sport fly fishing

Information gathered from: Fisheries of the North Pacific

Robert J. Browning
Alaska Northwest Publishing Company
Anchorage, Alaska
1980, Revised Edition

Pacific Salmon and Steelhead Trout

R.T. Childerhose, Marj Trim
University of Washington Press
Seattle, Washington
1979

Salmon length and weight data: U.S. Dept. of Interior Fishery Leaflet 563
Pacific Salmon
Clifford J. Burner
Sept. 1964

Teacher Information Sheet

Definitions of Commercial Fishing Techniques

GILLNETTING - A net, supported by small floats, is extended out from the boat and hangs straight down in the water. Fish swim into net and are caught by their gills. Mesh size of net varies according to species' size desired to catch.

LONGLINE GEAR FISHING - Longlines, or skates, with baited hooks spaced along them, run from anchor along the bottom and up to the boat. Several lines may be set side by side and may run 1-3 miles along the bottom of the ocean. Used mostly for halibut fishing.

PURSE SEINING - A skiff is used to pull a large net out from the main boat. The skiff and seiner meet up with each other, forming a circle with the net. The net is pulled tight at the bottom by a bottom line, making a "purse." This action traps fish in the purse and then is hoisted onto the seiner.

TRAWLING - A large net in the shape of a cone is towed along the bottom of the ocean, and scoops up fish.

TROLLING - Long poles, extending perpendicularly out over the water, hold several lines and hooks, with or without lures, and are dragged slowly through the water, snagging fish.

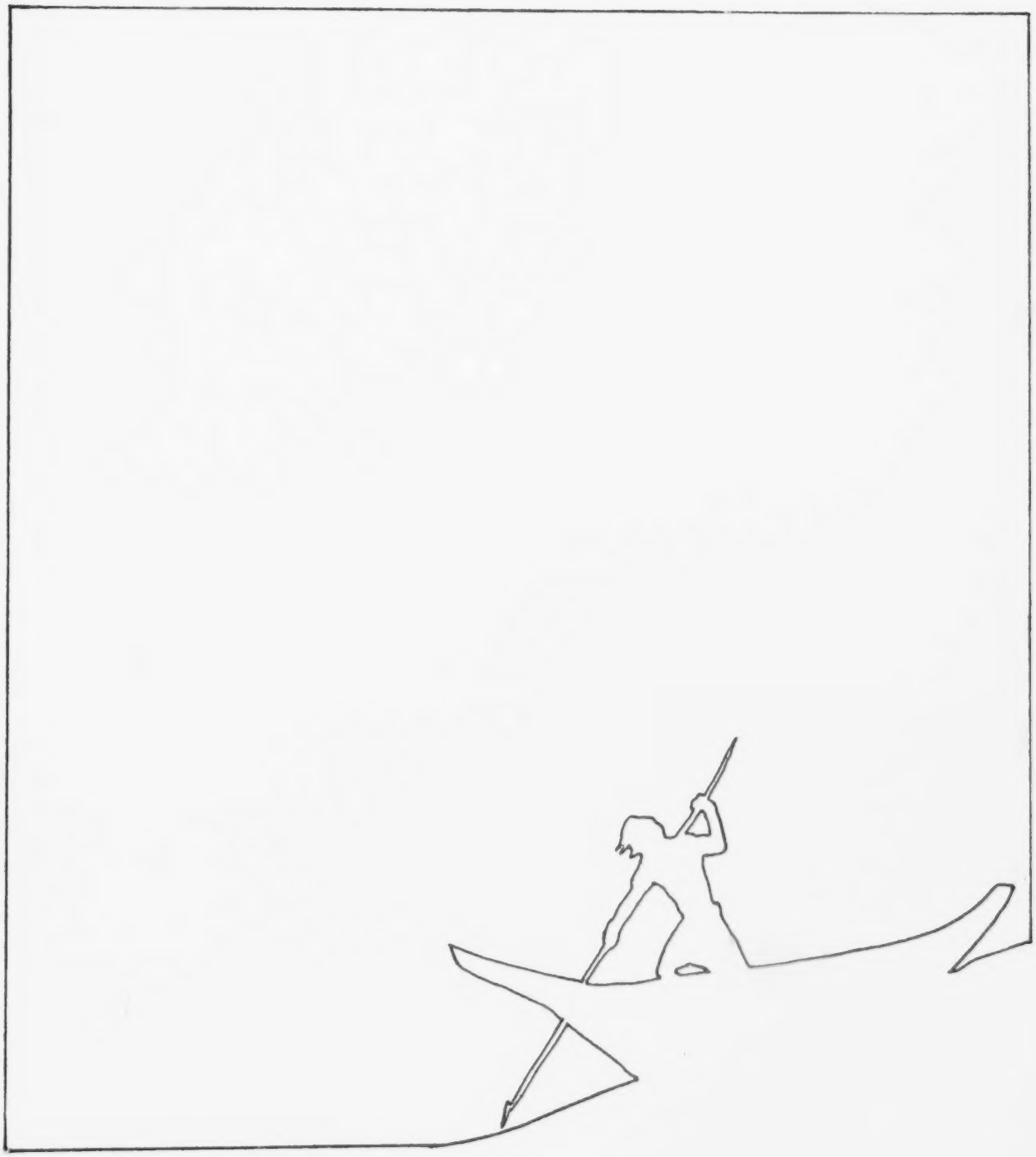
Recommended Slide Show: Commercial Salmon Fishing, A Washington Industry.
by Washington Sea Grant
Available through Sea Grant or Pacific Science Center

NAME_____

FISHING TODAY

DIRECTIONS: List gear (object) that you have used, seen, or that you know is used to catch fish. Tell what it is used for (function), what it is made of (materials), how many parts are included in the object, i.e. screws, formed metal, wood pieces, etc., and how it is made (construction), where you get it (source), and any personal fishing experiences you have had.

OBJECT	FUNCTION	MATERIALS	CONSTRUCTION (number of parts)	SOURCE	PERSONAL EXPERIENCES "Fish Stories"



ACTIVITY 2:
THE PLACE AND THE PEOPLE
(8 DAYS)

ACTIVITY 2: THE PLACE AND THE PEOPLE (8 DAYS)

CONCEPTS:

The water environment greatly influenced the early Puget Sound Indians' entire way of life. This influence is seen not only in stories, religious ceremonies, food source, life style, and occupation of the time, but carries through to today.

OBJECTIVES:

Following the activity the student will demonstrate his/her ability to:

1. identify and locate on a map major geographical features of the Puget Sound region.
2. identify major natural resources of the Puget Sound region.
3. identify and locate on a map the Indian groups.
4. explain the relationship between natural resources' cycles and the life style of the early people.
5. describe the First Salmon Ceremony and explain its origins among the Skokomish people.

TEACHER PREPARATION:

1. The teacher should read the Teacher Information Sheets and the Student Handouts.
2. The teacher should also locate and read selected parts from books suggested in the bibliography, i.e. First Salmon Ceremony, religion, fishing and equipment, housing, etc. These books should also be available for student reference.

MATERIALS:

1. Teacher Information Sheets, "Early Fishing People of Puget Sound" and "Early Puget Sound Indian Tribes & Pronunciation Guide."
2. Class sets of student handouts:
   - -blank outline maps of Puget Sound (2 per student)
   - -"First Salmon Ceremony"
   - -"Winter's Night in a Longhouse"
   - -"Early Peoples Oral Literature"
   - -"Secret Society Initiate Goes to Salmon Home"
   - -"Girl Marries Dog Salmon"
3. Teacher Information Map
4. Maps of Puget Sound region, i.e. atlases, road maps, etc. (1 map per 2 students)

PROCEDURE:

1. Pass out blank map of Puget Sound
   - -have students label, in pencil, any major features with which they are familiar (Puget Sound, Hood Canal, Whidbey Island, Mount Rainier, Seattle, city in which they live, etc.)
   - -in groups of two using road maps, atlases, wall maps, have students add major features they omitted and make corrections to complete their maps.

2. To heighten students' understanding of western Washington, discuss the major geographical features, their locations, and the natural resources that are products of these major features. Ask questions concerning the abundance, uses, and value of the resources (economic, aesthetic, nutritionally, for shelter, clothing, etc.). Use the following list as a guide for discussion.

   Geographical features-
   Rivers (i.e. Duwamish, Snohomish, Puyallup, Skagit, Nisqually)
   Mountain Ranges (i.e. Cascades, Olympics)
   Volcanic Mountains (i.e. Mt. Rainier, Mt. Baker)
   Puget Sound, Hood Canal, Straits of Juan de Fuca
   Whidbey Island, Bainbridge Island, Vashon Island
   Lake Washington, Kitsap Peninsula

   Natural resources-
   fish, shellfish (i.e. salmon, halibut, crab, mussels)
   trees, bark (i.e. cedar, fir, alder)
   game, waterfowl
   wild berries, edible plants
   sea grasses, kelp
   rocks, minerals

3. Using road maps, atlas, etc. from previous exercise, have students make a list of tribal names from rivers, towns,etc. (Snohomish, Nooksack, Nisqually, Puyallup). Explain the some Indian place names were from individuals ("Chief Sealth" - Seattle).
   -Using this list, have each students label in pencil on a blank map of Puget Sound the areas where they think each of these tribes may have lived. (Use Teacher Information Sheet "Some Early Puget Sound Indian Tribes" as a guide.) Discuss <u>why</u> the Indians chose the locations they did--access to natural resources, transportation, etc.

4. For 3000 years, this environment has provided the Puget Sound Indians plentiful resources for a stable lifestyle and culture. The following story emphasizes this point by describing an ancient ritual that ties economy, customs, and religion together; it is a ritual that is still practiced today.
   -pass out student reading, "First Salmon Ceremony"
   -have students read silently
   -have students write essay on the comparison of their summer cycle, i.e. camping, vacations, summer jobs, summer school, etc. and the Early Puget Sound Indians' summer cycle. Ask the students to discuss what part of the environment affects their activities.

5. Lead a discussion about the early peoples' summer activities as well as the First Salmon Ceremony. Include information about cycles, housing in summer, fishing, and gathering food. Have students compare similarities and differences between Thanksgiving and the First Salmon Ceremony.

6. Pass out student reading, "Winter's Night in a Longhouse."
   -have students read silently
   -having gathered resources all summer, more time could be devoted to leisure. Spirit Dancing and stories told were not only important for gaining spirit power, but were a source of entertainment and social gatherings as well. Lead a discussion on the difference between the summer and winter life styles of the Indians, considering activities, shelter, etc.
   -discuss the importance of Spirit Power and what it may have meant to the Initiate. Consider rituals/customs in other cultures. Ask students to share any rituals/customs they have experienced and what it meant to them.

7. Read aloud the story, "Secret Society Initiate Goes to Salmon Home."
   -telling stories was one of the traditional ways of teaching young people about the way to behave, how to believe, family history, and explanations of natural phenomenon. It was also a form of entertainment. Just like TV shows us ways of behavior, beliefs, histories, explanations, and more, it is also a major source of our entertainment.

8. The following day, read story "Girl Marries Dog Salmon."
   -have the students compare the two visions received by the Girl and the Initiate.
   -lead a discussion about the importance of salmon to the Puget Sound Indians and how that importance was felt in every aspect of an individual's life.

Teacher Information Sheet

Early Fishing People of Puget Sound*

A majority of the books which are readily available to teachers are written about the whole Northwest Coast. This is a major culture area extending as a narrow coastal strip from Humboldt Bay in Northern California to Yakutat Bay in Alaska. In general, all the people in this area lived in the same way. However, the details of this way of life differed considerably so that the Northwest Coast can be divided into three areas: the Southern, which includes Northwest California and most of the Oregon coast; the Central, which extends from the Columbia River to and including Southern British Columbia; and the Northern from Central British Columbia to Southeastern Alaska. Each division, in turn, may be further subdivided. The Indians of Puget Sound are within the Central division. There is no one division or tribe within a division which is "typical" of the Northwest Coast as a whole. There are many local variations and special elaborations on the basic Northwest culture pattern.

The most remarkable characteristics of the Northwest Coast culture area are dependent on the region's geography - its extremely abundant and varied natural food resources and its temperate climate. The Indians of the area did not domesticate animals, except the dog, nor plants, and sustained themselves entirely on foods that they fished, gathered and hunted. Edible seafoods, land game, waterfowl and plant life were so plentiful that the Indians were able to obtain all the food they needed in a seven-month period--from about mid-March to mid-October--to feed themselves during a long leisure season of freedom from food-getting pursuits during the five coldest and wettest months of the year. This culture area is the only one in the world where peoples lacking plant and animal domestication were able to obtain foods in quantities large enough to carry them through a long, single period of nearly full-time ceremonial activity.

On the Northwest Coast, the yearly food supplies were exceptionally dependable. And it was unnecessary for gatherers of shellfish and plant-foods, fishermen and hunters to travel long distances to obtain a great deal of food in suitable variety during the seven-month food-getting season. There was never danger that customary food resources would be depleted. The berries, roots, fish and game reappeared regularly on schedule at the same grounds year after year. Although game, plants, shellfish and many species of true fish were plentiful, all of the Northwest Coast Indians counted on salmon as their staple. And it was not only their staple, but most species of salmon figured as their prestige foods as well.

Because of five consecutive months of freedom from food production and dependability of resources, it was possible and practical for the Northwest Coast Indians to build large, sturdy, comfortable, permanent homes. Most were multiple-family houses, divided into apartments, accomodating from several to thirty or more families.

* Written by Dr. Sally Snyder
Excerpted in part from Thomas Burke Memorial Washington State Museum, "The Indians of Puget Sound," set 6, University of Washington, Seattle, WA

In Puget Sound, villages consisted of from one to four such large buildings. Villages were not simply abandoned in the warm months when people were travelling about for foods. During summer they were occupied by a portion of the population and served as headquarters for the others who would bring in their catches of fish, slain game and plant-foods to be processed and stored for winter.

The Northwest Coast combination of permanent village architecture and the seasonal work-leisure pattern is unique for the world's hunting-fishing-gathering peoples. In fact, the Indians of the Northwest had considerably more freedom from food-getting pursuits, and were far more sedentary and prosperous than many farmers and herders who had more advanced techniques for food production. It is not surprising that the population density on the Northwest was the highest in the world for all recorded cultures similarly lacking plant and animal domestication.

Because food was obtained in such great surplus, the excess of food and most goods was handled as wealth. It was controlled through a complex of rights by important family heads and village leaders. There was favoritism in distribution of goods and foods, so that some of the population had considerably more wealth than others. Accordingly, there was a social-class system based on wealth and hereditary privilage. This is unique in that the existence of social classes based on wealth is a phenomenon that is usually encountered only in well-to-do farming and herding societies, as well as in industrialized nations.

Thus, through several closely interrelated features, the Northwest Coast was one of the most remarkable culture areas known to anthropology. To summarize its fundamental characteristics:

1. High technology for fishing
2. Large annual food surpluses
3. Long annual sedentary leisure period
4. Permanent villages and village architecture
5. Fisheries the dominant food-getting activity, salmon and shellfish the dietary staple.
6. Social classes based on wealth.

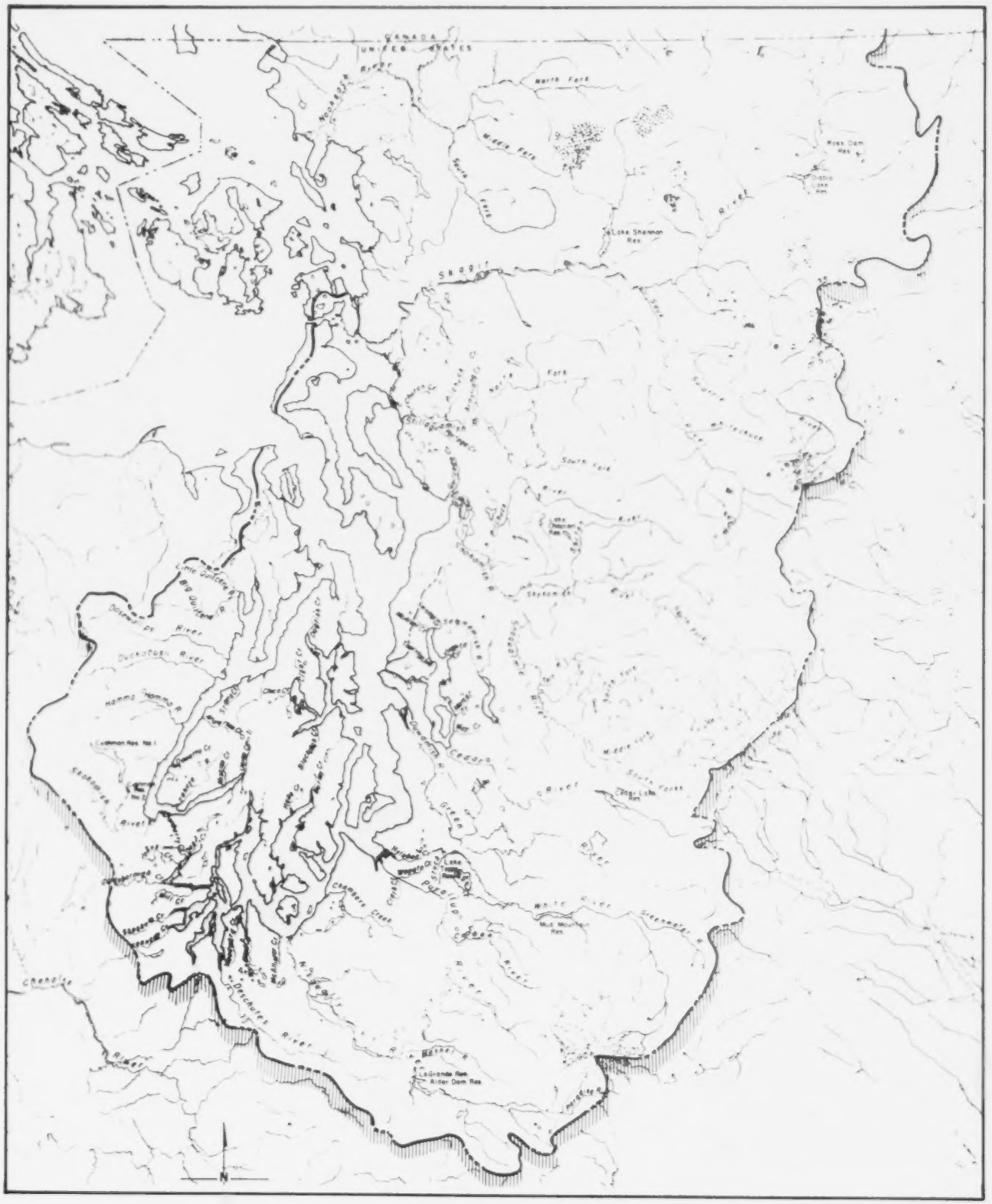
Teacher Information Sheet

SOME EARLY PUGET SOUND INDIAN TRIBES & PRONUNCIATION GUIDE

Note: This list does not include all present day tribal names because these names are of early Indian language groups. Tribal reservations were later formed by the USA Dept. of War under the 1855-1859 treaties. The main language name is Salish, the people known as Coast Salish people. Within this group are smaller language divisions given below. There is no standardized spelling of these Indian tribal names. Whenever the tribal name is the same as that of the river on which it had its winter villages, the standardized spelling of that river is used here for the name of the tribe. (Pronunciation is the same as Webster's dictionaries.) The suffix "-amish" indicates they are the "people of" a certain river system.

Clallam (klal/lam)	-group formerly between Port Discovery Bay west to mouth of Straits of Juan de Fuca.
Chemakum (chem/a kum)	-formerly occupied land from the mouth of Hood's Canal to the mouth of Port Discovery Bay.
Duwamish (du wa/mish)	-small group of people once living along the Duwamish River, on the present site of Seattle.
Lummi (lum/mi)	-tribe near northern end of Puget Sound and north Straits area
Nooksack (nook/sak)	-tribe formerly living along Nooksack River. Name means "mountain men."
Puyallup (puyal/lup)	-tribe once living along the Puyallup River and adjacent to Puget Sound.
Samish (sa/mish)	-a group once living along the Samish Bay of the northern Puget Sound region south of Lummis.
Skagit (skag/it)	-tribe lived south of the Samish, mainly near the upper Skagit River
Skokomish (sko ko/mish)	-tribe formerly living at the mouth of the Skokomish River, which flows into the southern end of Hood Canal. The name means "river people."
Snohomish (sno ho/mish)	-tribe once living on the south end of Whidbey Island and along the adjacent east coast of Puget Sound. Everett is at the mouth of the Snohomish River.
Squaxin (squak/son)	-tribe formerly living east of the Twanas and west of the Puyallup at and around the base of the great peninsula between Hood Canal and the main sound.
Stillaguamish (still a gua/mish)	-tribe once living along the Stillaguamish River in northwestern Washington.
Suquamish (su kwa/mish)	-tribe formerly living on islands west of Seattle and possibly along adjacent shores of Puget Sound.
Swinomish (swin/o mish)	- a tribe once living along lower Skagit River

Teacher Information Map



Student Map

NAME_____

A "FIRST SALMON CEREMONY" - AUGUST, 1979

When thinking of the passing of time, most of us use the twelve month calendar cycle and the various holidays within each month. New Year's Day, Easter and Passover, Independence Day, Yom Kippur, Thanksgiving, Christmas, and Chanukah all stand out as significant points in the year. It is often because of these holidays that we notice the changes of the year, reflect upon past years, and plan the next.

For others whose lives are not marked by the calendar, there is the cycle of seasons. This was the cycle for generations of early Puget Sound people who needed no months or years for reference to time. Time was all around them. There was the time when ferns unfurled from the ground and tender nettles sprouted, giving the first fresh greens to the people after a cold winter. Cottonwood buds sweetened the warming air and wild celery stalks poked up from the ground through a mat of crusted brown leaves. The warmth of this season nurtured all growth. New cells in the cedar trees produced new layers of inner bark, allowing people to strip some bark to make baskets and clothing.

In times of old, during the early summer season some Puget Sound people moved from one fishing camp to another, while others camped in the prairies and dug the spring camus bulbs. Thousands of blue flowers waved over fields tended only by occasional burning. Others canoed to the beaches to gather clams, mussels, limpets, snails, chitons, sea urchins, and gooseneck barnacles. Then they packed up their cattail mat tents and traveled on to dig wild potato or pick red huckleberries and salmon berries. These summer campers returned home to the huge longhouses only to empty their boxes and baskets, and talk and laugh with friends. After catching up on the latest news, they were off again for another part of the country. As the season passed into early fall, people moved high in the mountains to harvest blueberries and huckleberries.

The passing of time was noticed through these changing resources around them. The summer season evolved with the salmon return; each species' return at different times showed the progression through and passing of summer. First came the spring salmon, called the Chinook or King. Following them came the Sockeye, Humpy, and Coho. And finally, the Chum salmon would return, marking the beginning of fall. To the Skokomish people, one Puget Sound group, the Chum salmon is the honored salmon. The first Chum caught in the fall is shown respect through ceremony.

I reflected upon these thoughts as my old VW creaked and rattled over the dried up chuck holes in the dirt road. River pebbles sprang out from beneath the wheels. An opening by the Skokomish River beach appeared and I realized I had arrived at my destination.

I had come to this place for a very special reason. My friend, Bruce, had invited me to come to the First Salmon Ceremony, the Skokomish Indian ceremony for the return of the Chum salmon. Bruce is a large, broad-chested Skokomish man with long, curly, black hair. I had met him when I was working at an archeological site of an old summer fish camp. Bruce had returned after completing his Master's Degree at Berkeley. In a half-joking, yet half-serious ceremony, he had planted a homemade Skokomish flag in the ancient fish camp. Now, several years later, he had invited me to another ceremony. This one had been handed down from generation to generation and now reflected the modern world.

When I arrived at the Skokomish River beach, there was much activity and people were already gathering around the car of the religious leader, Joe. He was a large, dark man with short-cropped, gray hair. Like many others, he wore a blanket wrapped over one shoulder and pinned under the other arm. Red paint was streaked across his cheeks to show respect for the honored salmon spirit. He talked softly to his grandson as he lifted the headdress made of woman's hair and eagle feathers to place on the boy's head. A beach fire was already burning and women were setting the tables with potato salad, pies, corn, and coffee.

Mike, a young fisherman, stood by Joe at the river's edge. He cradled in his arms the salmon which he had caught, the first salmon to be caught. It lay on a bed of sword ferns. The old man began to shake his rattle and sing deeply. His voice shook, but not from age. Hand drums vibrated with a tenor resonance and the young dancers welcomed the spirit of the salmon.

"Si'ab, beloved one, welcome," Joe chanted. "We all have come to honor you, to respect you. You have come as food for us."

Joe raised his voice. "My friends, listen to me. After you have eaten the meat of the salmon, place all the bones and skin on these ferns. That is the way. That is the way our ancestors have taught us."

Being the fisherman that caught the first salmon, Mike had the responsibility of cutting the fish. He was careful to cut only the meat, spreading out a beautiful filet of red salmon. The nieces and nephews watched closely as if something magical were about to happen. It was an ancient ceremony of thanksgiving and a reminder of a delicate life cycle.

Much talk and laughter followed as everyone ate. There was far too much food for one sitting, so leftovers were divided up into bowls for each family's evening meal. The warm fall afternoon wore on. Finally, Joe rose and motioned to Mike and Bruce for their assistance. Bruce raised his drumstick, bringing it down hard on the drum skin. His baritone voice moved across the river. Others joined in. Mike lifted the bed of ferns now covered with salmon bones and skin and the procession moved to the river's edge.

Mike waded into the cold water, cradling the fern bed in his arms. He waded deeper and deeper up to his bare chest. Gently, he floated the bed on the water. We watched as it was carried downstream to the salt water.

"Go tell those salmon people, Si'ab. Tell them we have honored you. Tell them to come up the river to be food for us," Joe chanted.

As Joe's voice rang out, he threw a handful of wild celery seeds and dried red paint into the water. Turning back to the crowd, he called upon all the fishermen to come and do the same. Bruce stood beside him, reminding him of each of their names and the names of their boats.

"Harlan, fisherman of the Seascout, Stan, fisherman of the Night Hawk. . ." and so on.

Each man and woman, taking a handful of celery seeds and dried red paint from the religious man, threw it into the water and said their own silent prayer of thanks.

NAME_____

WINTER'S NIGHT IN A LONGHOUSE - DECEMBER, 1981

The snow had fallen heavily during the night -- enough so that Leona had to push hard to open the longhouse door. A dog poked its nose into the warmth. "Out!" she ordered.

Leona's strong arms gently guided a woman in through the doorway. This woman was participating in an initiation of spirit dancing, a very private ceremony that each of her ancestors had done for many generations past. She wore a large woolen hat with white wool strands hanging down so as to block her vision. These would help her to concentrate on the spiritual work she was doing and not get distracted.

My friend, Bruce, had long since risen from his sleeping bench, stoked the fire in the central fire pit of the longhouse and now walked across the sandy floor for a fresh cup of coffee. Others, like myself, were rolling up our sleeping bags and blankets on the side platforms that served as sleeping benches around the sides of the house.

"I trust you slept well," said Bruce, sitting down next to me.

Actually, sleep had come slowly. That is often the case when I am filled with excitement. I had actually spent the night in the longhouse! I had lain on the sleeping bench where, during the evening, I had sat watching the red paint and black paint spirit dancers. Upon retiring I had lain awake, reliving each dance step, the movement of the wool and cedar bark outfits, the songs, the tension of the drums, and the words of encouragement from the experienced ones to the new initiates.

I imagined it was like going back hundreds of years, to the way the ancestors must have celebrated the winter cycle and the Spirit Dancing. In those days, the longhouses were made of huge cedar logs and long planks. One to four longhouses, sometimes up to three hundred feet in length, would stretch along the river or beach in each village. The houses were divided into apartments for everyday use. Each family would have slept and cooked meals in their own apartment. Shelves that ran along the walls of the longhouse stored boxes and baskets of great quantities of food gathered during the summer. There was always plenty to eat. Of course, the owner of the huge house was the highest ranking person, who lived in the middle portion of the house and had the most space. The lower ranking people would work for the owner of the house and some of them slept by the doorways to guard the entrance.

When it came time for the winter Spirit Dancing, the apartments were taken apart and the huge house became a community hall with large central fires for heat and light. Here everyone shared food, laughter, songs, dances, and stories. Late at night, after the dancing was finished and the initiates were isolated in their apartments on one side of the big room, people sat around talking and laughing softly. The golden-red logs in the fire would shift. The fire snapped and the smoke stream curled in different directions as it traveled through the smoke hole.

The elders would talk of the importance of syó wen, or spirit power. It was a private thing, this "syó wen." The elders considered the spiritual work or training as "getting to know yourself."

If you were an initiate, training began at a very young age, five or six, by bathing with your parents in the cold water before the sun was up, or by looking for your toys or objects which your parents or grandparents had hidden near the long-house. And as you grew older, you would spend many nights by yourself in the woods, swimming and diving deeply in the cold mountain streams and learning to walk long distances without food. You would be alert to all signs to plants, animals, and spirits around you, but never speak of what you saw. It was private.

This was the way you prepared yourself. And the elders would say that when your power came to you, it would speak to you or take you traveling to different places. It was somewhat like a dream, but it was also very real.

Only the old could talk of such matters. Your grandparents would instruct you, tell you of their spirit power, their song and dance. They did not fear the loss that came when a spirit was offended and would leave the body. After all, the spirits left the elderly to return to the spirit world. But for you, as a young person, this loss or lack of receiving a spirit power would affect your future. Your strength and ability to achieve and to attain wealth and recognition in what you did depended upon your spirit power. It had come into you to help you throughout your life. You would not take this matter lightly.

Sometimes the elders would speak of "syó wen" through stories. The rest would listen, learning much from the stories. That's the way it was; that's the way stories would always be, for entertainment and for learning, too.

EARLY PEOPLES ORAL LITERATURE

The following two stories have been revised from Dr. W. W. Elmendorf's anthropological writing which he collected in the summers of 1939 and 1940. The stories were told by two elderly Skokomish brothers, Frank and Henry Allen, eighty and seventy-five years of age, respectively, in 1940.

Both Frank and Henry told the stories in English, however, they both used the phrase structure that was traditional to their Indian language. As you read these stories, keep in mind that you are reading a formalized structure, poetry or song words. Take note of phrases and word patterns. Because language is often among the first traditions to be lost in a changing culture, most stories today are not told in poetry form and almost all are told in English.

These two poems tell of a time that happened after myth time and after the world was changed to the way we know it today. It is often referred to as the time of "real people", denoting a semi-historical period. They both emphasize the importance of salmon to the people, even individuals, and further, imply to us and young initiates what a spirit quest must be like.

SECRET SOCIETY INITIATE GOES TO SALMON HOME

told by Frank Allen
recorded by William W. Elmendorf

"We come to the talk of initiates.

That is the name of anybody
after they have joined the Secret Society.
After they get that black paint spirit power
they call them initiates,
the Clallam do.

What I am telling you happened
on Dungeness River.
A man who had been in the Secret Society
who had become a spirit dancer
had gone to Dungeness River.
And he wore a cedar bark band around his head,
dyed red.

Up the river, where the salmon spawn
he saw an old, worn out salmon.
And he took a long piece of bark
off of his head band
that he was wearing.
And he tied that bark around
the old salmon's tail.
Then he went home.

Now after a while he went back to see that old salmon,
the salmon he had tied the cedar bark to,
and the salmon is gone.
Two or three times he goes there,
but the salmon is gone.

When salmon are old and gone,
done spawning, they go back
to where they came from.
They claim this way:
that same salmon will come back again
next year, all new.
That's what this man wants to see.
He wants to see if that same salmon
will come back again next year
to that same place.

But he doesn't tell anybody
that he has done that to the salmon,
doesn't tell his people
he has tied bark to the tail of that salmon.

So now salmon time comes again the next year.
And that man keeps watching
at the same place he saw
the old salmon the year before.
And now he sees that the same fish
new now,
with the same cedar bark around his tail.

So he says to his people now,
'Do not touch that salmon
with the cedar bark around his tail.
Dont' kill him.
I put that bark around his tail
to see if he would come back.'

And everybody went to look
at that salmon spawning now.
Everybody saw that salmon
that had come back.
And the people there
would not spear that salmon,
they were afraid to kill it now.

Finally that salmon is getting old now,
all worn out spawning,
that salmon with the cedar bark around his tail.
And still nobody touches him,
they let him alone.
Now fall comes
the salmon disappears,
the old salmon.

Now the man goes to see that salmon,
the salmon he had tied with cedar bark.
And the salmon speaks to him and says,
'We are going to take you home now,
we are going to take you to our home.'

After a while people notice that man is gone.
And the people say,
'Salmon have taken him
he is gone with the salmon.'
This salmon was dog salmon.
And this dog salmon takes that man to his country,
to his home.

In that salmon country
he sees the houses of steelhead,
of silver salmon,
of all the other salmon,
and finally they land him at the house of dog salmon.
Now in that dog salmon's country,
they have homes just like we have.

That man didn't go in his body with dog salmon.
His body stayed here,
but people couldn't see it,
and he was turned into a salmon himself.
He found himself going
just like a salmon.

Now, there the dog salmon shows him
dog salmon of all shapes.
Some had their eyes set crooked,
some had their tails twisted,
all shapes.

Now, when salmon are in their own country,
they are just like we are,
but when they come to our country
they turn salmon.
But there they are just like people.

Now the dog salmon calls all the other salmon people
to come look at this man he has brought.
He calls humpback, steelhead, silver,
and all other salmon.

Steelhead says, 'I know him,
that fellow;
he kills me,
he eats me.'
All the salmon know that man
when he lands in their country.
Humpback knows him,
and all the salmon that run at Dungeness
know that fellow.

And now the year comes,
the time when salmon come,
and dog salmon gets ready,
he's going to take that man with him now.

And now they come to Dungeness River
and that man comes with them.
And he gets his body back now,
he comes to himself now,
and he is no more a salmon.

Then he takes the cedar bark
off the tail of the dog salmon,
where he had put it.

People now gather to see that man
who was missing.
They gather in a house
to see that man.
And now he says
it is all different to him,
his eyes don't feel right
it is hard for him to walk right.

And he says to the people,
'You can't kill salmon.
No matter if you kill him here
and eat him,
his spirit goes back to his home.
Salmon is a people.'

'If you kill the first salmon that comes,
the crooked-jaw salmon,
carry his bones to the water
and throw them in the water.
That's the chief of salmon,
that crooked-jaw salmon,
save his bones.'

And he tells them,
'The salmon say to me,
"Be careful of us.
Don't butcher us on the ground.
Lay us on a mat when you butcher us.
You can eat us,
we never die,
we come back from our own country.
But be careful of us."'

And he says,
'The salmon call their big young men
and they tell me,
"These are our big people
and we will send them to run up Dungeness River.
Great big salmon will run up the Dungeness."
That's what they tell me.'

It's done now,
he's telling the people.
He tells them to watch
for the big salmon when they come.
He says,
'When this big salmon comes
thank him.
You women
thank him when you butcher him.
Say "há nat," thank you*
when he comes.'

Now the year comes,
the time for the salmon comes.
And big salmon come,
lots of them.
And the people catch them
and thank them,
the women thank them
when they butcher them.

For years now they keep coming.
Now that is done
with this history of dog salmon.
This was way back,
a long time ago."

* Há nat means thank you in Clallam.
The "a" is pronounced as the "a" in father.

GIRL MARRIES DOG SALMON

told by Henry Allen
recorded by William W. Elmendorf

"The salmon are human beings too.

Once a girl got a certain kind of power.
She told her family,
'We'll have to dig a deep hole
in the floor of the house.
I know that fire is coming.'
Her father didn't believe her,
but he dug a hole anyway to please her.

And sure enough
a great fire came and burned the whole country
and the village.
All the people were killed;
only the girl saved herself in the hole.

When she came out she found herself all alone.
There was a stream nearby.
She would visit it everyday.
This went on for some time.
And finally she saw a small fish going up the stream.

And that girl wished for a mate of some kind,
and while she was thinking that way,
the fish going by changed into a man.
She became his wife,
and he took her home across the ocean.

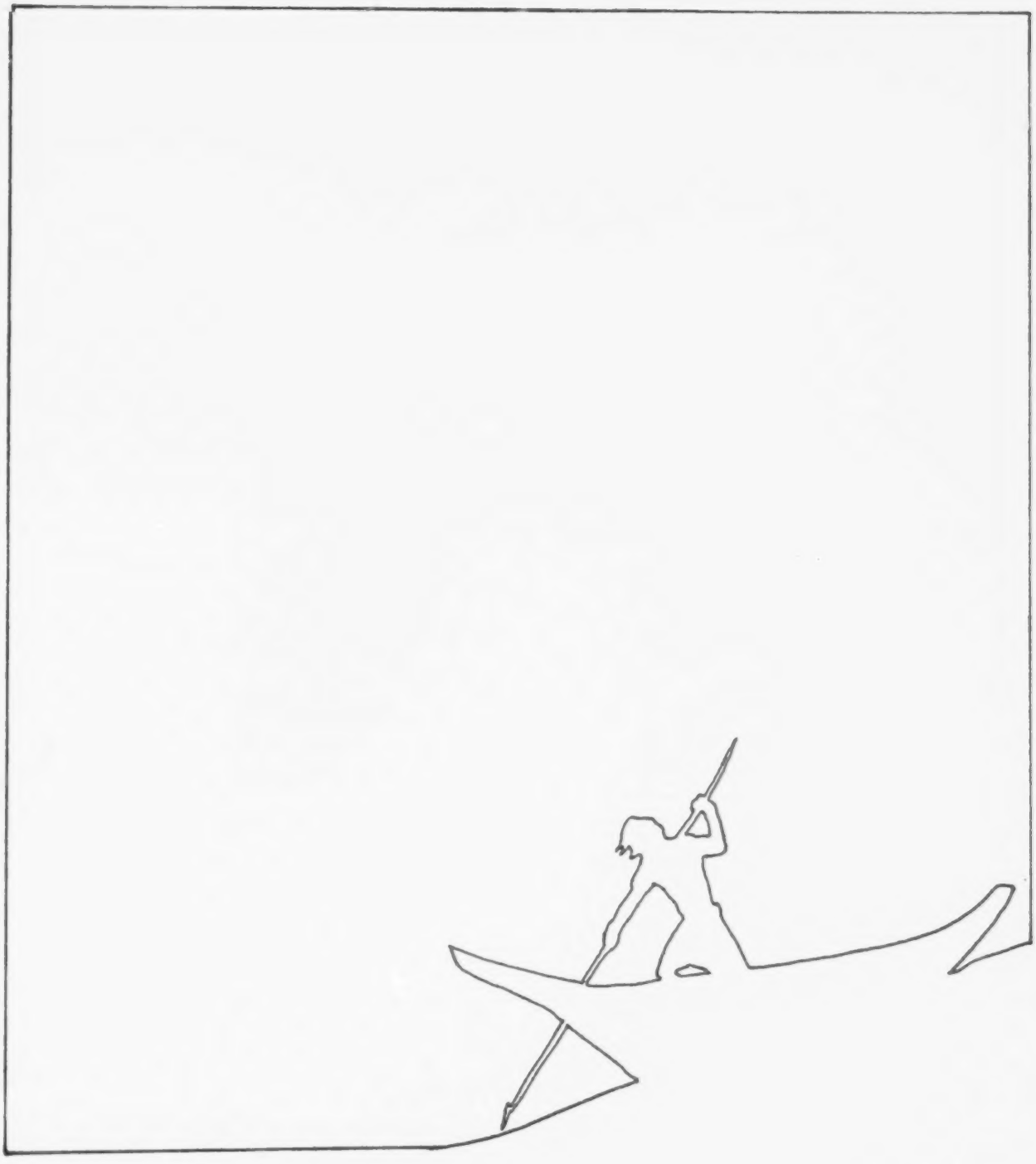
As they approached his country
she saw flames coming out of the houses
in the village there.
'What's that?'
'Oh, those red flames from that house are Coho.
That cross-barred flame is from my house;
that's Dog Salmon.
And that one's King.
That's Steelhead.'
Each one had a different colored flame.

They landed
and the girl became the mother of great numbers of dog salmon.
The village became crowded with their children
and the people said
something would have to be done,
there were too many people.

They sent Coho
to find that girl's people
and he came back and said
there was no one left alive in the country.

Then they sent Steelhead.
They told him to go way up in the mountains,
but he came back
and said he had been way up in the mountains
but there were no people.
Then they sent that girl home anyway
with all her children.

That's why the dog salmon are so numerous here in Skokomish county.
And the other salmon
come to visit them every year,
and her children, the dog salmon,
come back and forth visiting.
That's why the salmon
come here from their country
across the ocean to visit every year."



ACTIVITY 3:
FISHING IN THE PUGET SOUND AREA LONG AGO (5 DAYS)

ACTIVITY 3: FISHING IN THE PUGET SOUND AREA LONG AGO (5 DAYS)

CONCEPTS:

1. All people are dependent upon their environment.
2. When there is a need and the available resources, people will invent the tools and technology to meet their needs.

OBJECTIVES:

Following the activity the student will demonstrate his/her ability to:

1. explain the relationship between need, the available resources, and technology.
2. analyze pictures of early fishing techniques to explain the technique used, the materials used, and the kind of fish caught.

TEACHER PREPARATION:

1. Teacher gather samples of natural materials (or plan field trip--see extended activities)
2. Read Teacher Information Sheet, "Early Puget Sound Indian Fishing Technology" and see accompanying graphics
3. Read student handout, "Dipper and Coyote" and "A Fish Story."
4. Be familiar with "The Mystery of Early Puget Sound Fishing" and "Explain What's Happening."

MATERIALS:

1. Variety of natural materials of possible use to the early Indians' fishing technology
   a. grasses (bear grass, sweet grass, cattail)
   b. roots (cedar, spruce)
   c. bark (cedar)
   d. branches
   e. rocks
   f. seaweed
   g. kelp
   h. shells (mussels, clams, scallops)
2. Teacher Information Sheets, "The Mystery of Early Puget Sound Fishing," "Explain What's Happening," and "Early Puget Sound Indian Fishing Technology."
3. Student handouts,"The Mystery of Early Puget Sound Fishing," and "Explain What's Happening."
4. Overhead transparencies of illustrated fishing techniques (1-7)
5. Student handout, "Dipper and Coyote"
6. Student handout, "A Fish Story"
7. Magazines - 3 per 2 students, scissors, colored pens, butcher paper (18" x 24" sheet per 2 students)

PROCEDURE:

1. Lead a discussion to emphasize the relationship between people and their environment.
   a. introduce the idea that people develop technologies uniquely adapted to their environment
   b. emphasize that the highly successful fishing technology in Puget Sound had been developed over thousands of years and was a way of life to the Indians
   c. introduce the idea that the Indians had none of the modern fishing equipment we listed on the chart in Activity 1.

d. ask: How did they fish?
   1. allow students to contribute ideas
   2. encourage them to draw, diagram, explain for the class
   3. direct student thinking toward actual construction of objects (dug-out canoe: what to cut and shape with? what size? work with wood wet or dry? why?)

2. Display a variety of natural materials for students to handle and speculate as to possible use (see MATERIALS) or take a walking field trip to a nearby undeveloped area to look for natural materials (see EXTENDED ACTIVITIES).
3. Pass out student handout, "Mystery of Early Puget Sound Fishing" to each student.
   a. working in small groups to share ideas, students complete chart with a minimum of six objects
   b. emphasize that the assignment requires "educated guessing" based on their knowledge of the area's natural resources (both plant and animal life), and fishing equipment used today
   c. encourage them to be specific (in net-making, what kind of knot would you use?)
   d. following discussion of completed charts, students keep them for later comparison with actual methods.
4. Present overhead transparencies of early fishing techniques.
   a. explain that students are to analyze them and try to "Explain What's Happening" on the handout of the same name
   b. students work individually on this assignment.
5. Present illustrations a second time reading Teacher Information Sheet, "Early Puget Sound Indian Fishing Technology" as you go along.
   a. students take notes
   b. students compare charts, "Mystery of Early Puget Sound Fishing" and answers to "Explain What's Happening" to the actual techniques.
6. Have students select the technique that most interests them and summarize it in their notebooks.
7. Explain that the Indians of North Puget Sound were skilled at fishing. It was important to share and appreciate their good fortune. The legend of "Dipper and Coyote" moralizes on sharing this most important food, fish. Have students read the legend and discuss the characters of Dipper and Coyote.
8. Pass out student handout, "A Fish Story," allowing time for students to read and discuss the concept being presented.
   a. lay out collage materials so that they are readily accessible to students.
   b. team the students into pairs of two
   c. allow minimum of ½ hour to make their collage
   d. display so ideas can be shared.

EXTENDED ACTIVITIES:

1. Class take a walking, gathering, and drawing field trip in any nearby wooded or undeveloped area looking for natural materials they think might have been useful to early Puget Sound People. (Preferably near water, sound, lake, stream, or swamp.) In the interest of sound ecology, allow one specimen of an item and/or sketch and write a description. Good chance to discuss ecology. Return to classroom and display and discuss collections, specimens, and drawings.

   Invite Indian to guide and help students identify various plants: roots, berries, sprouts, cattails, sweet grass, cedar bark, seeds, etc.
   a. make a list showing why each was useful
   b. make mats or baskets out of cattails
   c. make dyes out of natural materials they have gathered

2. Ask students to imagine the environment of their local area as it had been in its natural state. Ask students to draw their school yard, home yard, neighborhood, or some other area of their town as it might have appeared during the period of the early Puget Sound Indians.

BIBLIOGRAPHY:

"A Fish Story" - excerpt quoted from Indian Fishing by Hilary Stewart.

Teacher Information Sheet

THE MYSTERY OF EARLY PUGET SOUND FISHING

QUESTION: Assuming that the early people needed at least some of the same basic fishing equipment as today, how did they get it using only natural resources?

OBJECT	FUNCTION	MATERIALS	CONSTRUCTION	SOURCE
canoe	transportation fishing	cedar	carve log, sides stretched by steam and water heated by hot stones	forest
net	collect fish	cedar and spruce roots and branches	roots split and twisted into rope, then knotted	forest
		kelp	stretched and knotted	beach
line	hold hooks	as above	as above	as above
hook	hook fish	cedar, spruce, fir, cherry, alder, bone	carved, wood was steamed to be bent, lashed with bark	forest
trap	trap fish	cedar, rocks	carved and lashed, rocks piled	forest beach
weir	block fish from traveling upstream	cedar	carved and lashed	forest
prying tool	pry shellfish off rocks	yew wood, cherry, stone (basalt)	carved chipped	forest stone quarry or beach

NAME_____

THE MYSTERY OF EARLY PUGET SOUND FISHING

QUESTION: Assuming that the early people needed at least some of the same basic fishing equipment as today, how did they get it using only natural resources?

OBJECT	FUNCTION	MATERIALS	CONSTRUCTION	SOURCE

47

48

Teacher Information Sheet

EARLY PUGET SOUND INDIAN FISHING TECHNOLOGY

There were several different kinds of fishing techniques depending upon the nature of the water in which the fish lived. There were freshwater lakes, streams, and creeks that drained into various inlets and bays of the Sound (name some of the lakes and streams in your area), the shallow bays of tidal flats, the deeper inlets and the Sound itself, and the larger straits.

SALMON

The five species of migrating salmon were originally captured in 1) nets, 2) weirs, 3) traps, 4) with hook and line before entering the river, and 5) spears. The hook and line method is most effective in salt water because salmon tend to not bite once they have re-entered freshwater to spawn. In freshwater lakes, the object was to catch the fish before they enter deep waters. The Indians would therefore station themselves at the outlet of the lake and either spear or gaff the salmon. (A gaff is an implement about six feet long with a hook at the end. PICTURE #1.) The trick was to spear a fish and haul it aboard in one swift, continuous motion.

The salmon spend an average of three years at sea and then return to their spawning grounds and gravel beds in the freshwater streams in the mountains. In the salmon's journey back from the ocean to their spawning grounds, a variety of saltwater and freshwater technologies were used.

Saltwater-

Nets: Nets such as gillnets, beach seine nets - PICTURE #2, and reef nets - PICTURE #7, were all part of the netting technology used in the saltwater area. Because different species of salmon are different sizes, different size gillnets must be used. Larger mesh for kings, smaller for humpies.

Traps: The technique of trapping salmon, and other fish, was generally used in the tideland areas. Fish would congregate at the mouths of rivers at high tide. The people would build large stone pens while the water was still low so that when the tide went out, the fish would be trapped inside the pens. Wooden traps of a variety of types were also used in this same manner.

Spearing: As has already been mentioned, spears or gaffs were used also in the saltwater. PICTURE #1.

Hook and Line: Salmon trolling was also very common. Success not only depended on knowing where the salmon were but also knowing how to bait a hook that would attract a salmon and at what speed to paddle.

Freshwater-

Once the salmon have entered freshwater, they do not feed and the drive to get to the spawning area is strong. Therefore, the technologies used in freshwater fishing had to take these two factors into consideration.

Traps: In fast flowing streams and rivers, a variety of traps were used to capture fish. One was the grid trap - PICTURE #3, and another was a river trap used in shallow swift water - PICTURE #4.

Weirs: Weirs block the passage of salmon and channel their upriver movement. The most famous fishing techniques were large weirs, built across the rivers to catch the returning salmon - PICTURE #5. Weirs varied with the width of the stream, but usually, they consisted of tall poles stuck firmly in the stream bed to which a fence of stakes woven together was attached. The salmon swam up to the weir, searched for an opening and once finding it, swam on. If someone was there to take the salmon, it was killed by a spear, club, or taken from the water with a dip-net.

Nets: On freshwater streams and creeks, the Indians also used gillnets. The opening of the mesh in the net would allow small fish to pass through easily, but would snare the gills of the larger fish when they tried to force their way through the net. Generally, these nets were not placed across the entire river, but on alternating sides of the river every several hundred yards so that some fish could get by and swim upstream to spawn.

Dip nets were also very popular. A platform was built out over a very swift and narrow channel of the river, generally in areas where the salmon would have to jump to work their way upstream. A person would stand on the platform, and as the salmon jumped, would catch the fish half in air and half in water with a small hooplike net on the end of a shaft. A large variety of these nets were developed.

COD

Cod were taken by bottom fishing with the same small hook used in trolling for salmon. Another method was to lure the fish off the bottom with a cod lure shaped like a shuttlecock. It was pushed to the bottom on a pole or dropped with weights. When released, the lure would spin upwards, attracting the cod which was then speared at the surface.

HERRING

The herring were taken in large numbers with fish rakes and nets. The fish rake was paddle-like in shape and set with a row of bone spikes along the edge. It was swung through a school of fish from the bow of the canoe - PICTURE #6. Today fishermen complain that herring runs are depleted by overfishing. Fish were so thick at the time these rakes were used that this was a sure and easy method. For bone spikes, splinters from the leg bone of a deer were used. For wooden spikes, sharpened points of ironwood were driven through the cedar shaft with a stone hammer. The rake was rubbed with tallow and smoked over a fire for four days to strengthen and waterproof it.

SHELLFISH

Shellfish, such as clams, oysters, limpets, abalone, chitons, barnacles, mussels, and sea urchins, could be collected at low tide in bays and beaches. At the appropriate times, the women and girls of the villages gathered these shellfish, sometimes using wooden digging sticks, and dried some of them for the winter or prepared gigantic feasts. Crabs were harvested, the best being those of Dungeness Bay. Crabs were plentiful in the spring but were difficult to preserve, so they provided a seasonal treat.

PICTURE #8: Over the past 5000 years, Indian people designed and perfected hooks and other accessories--lures, sinkers, floats, and lines--for fish of various sizes, habitats, characteristics, and behavior. Their fishing gear was so well suited to their environment and their skills so great, that they saw no need to change styles when the Europeans sailed into their waters with the standard curved hook. The bone barb was eventually replaced with iron, but the hook remained the same.

The steamed bent hook was designed to just fit the mouth of a flatfish. The curved back tip of the hook ensured that the fish take only the bait and therefore the barb. Before baiting, the fisherman rubbed his hands with seaweed and held them in salt water to remove any human scent. The bait, sometimes octopus, was wrapped around the barb and was taken into the fish's mouth, but because it was impossible to swallow, it was rejected. This caused the barb to penetrate the cheek and the fish was hooked.

Teacher Information Sheet

EXPLAIN WHAT'S HAPPENING

Picture	Object(s)	Function	Material	What Is The Person's Job? How Many Involved?
#1	harpoon canoe	spear and pull in salmon	wood sharp points (bone or rock)	cut through kelp, tie canoe, spear and haul aboard salmon in one swift motion (1)
Additional explanation:				
#2	nets, lines canoe paddles anchors	trap variety of fish as tide comes in and pull to shore	kelp cedar wood rock	set lines and net, paddle canoe, pull net and fish in to shore (4)
Additional explanation:	(see picture - Overhead transparency - Teacher)			
#3	grid trap weir spear	trap salmon as they enter through center fence opening and can't go upstream	wood, rope rock or bone	construct grid trap and weir, spear fish
Additional explanation:	When fish can't go upstream, they turn and are swept onto grid and caught between slats			
#4	trap	trap salmon in fast flowing stream	wood, rocks, string	construct trap position with rocks, frighten fish back down river, spear fish
Additional explanation:				
#5	fence weir canoe spear	block fish going upstream and channel into narrow passages	wood, rope, rock or bone	construct weir, spear salmon
Additional explanation:	Man standing at long narrow passage to spear fish; two types of lattice fence shown. These are held in place by downstream current.			

Teacher Information Sheet - EXPLAIN WHAT'S HAPPENING (cont'd)

Picture	Object(s)	Function	Material	What Is The Person's Job? How Many Involved?
#6	rake canoe	catch herring	wood, bone, stone	paddle canoe, make rake, catch fish by sweeping it through water

Additional explanation: _____

#7	net canoe lines anchors	trap salmon in net	kelp, cedar, rocks	cut path through kelp, lower and raise net, set nets, manipulate canoes

Additional explanation: (see picture - Overhead transparency - Teacher)

#8	hook	hook halibut	wood, bone, cedar, rope, steam to bend wood	make hook, hook halibut and pull in

Additional explanation: (see Activity 5 - Construction of Hooks)

EXPLAIN WHAT'S HAPPENING NAME_____

Picture	Object(s)	Function	Material	What Is The Person's Job? How Many Involved?

#1

Additional explanation:_____

#2

Additional explanation:_____

#3

Additional explanation:_____

#4

Additional explanation:_____

#5

Additional explanation:_____

EXPLAIN WHAT'S HAPPENING (cont'd)

NAME_____

Picture	Object(s)	Function	Material	What Is The Person's Job? How Many Involved?

#6

Additional explanation:_____

#7

Additional explanation:_____

#8

Additional explanation:_____

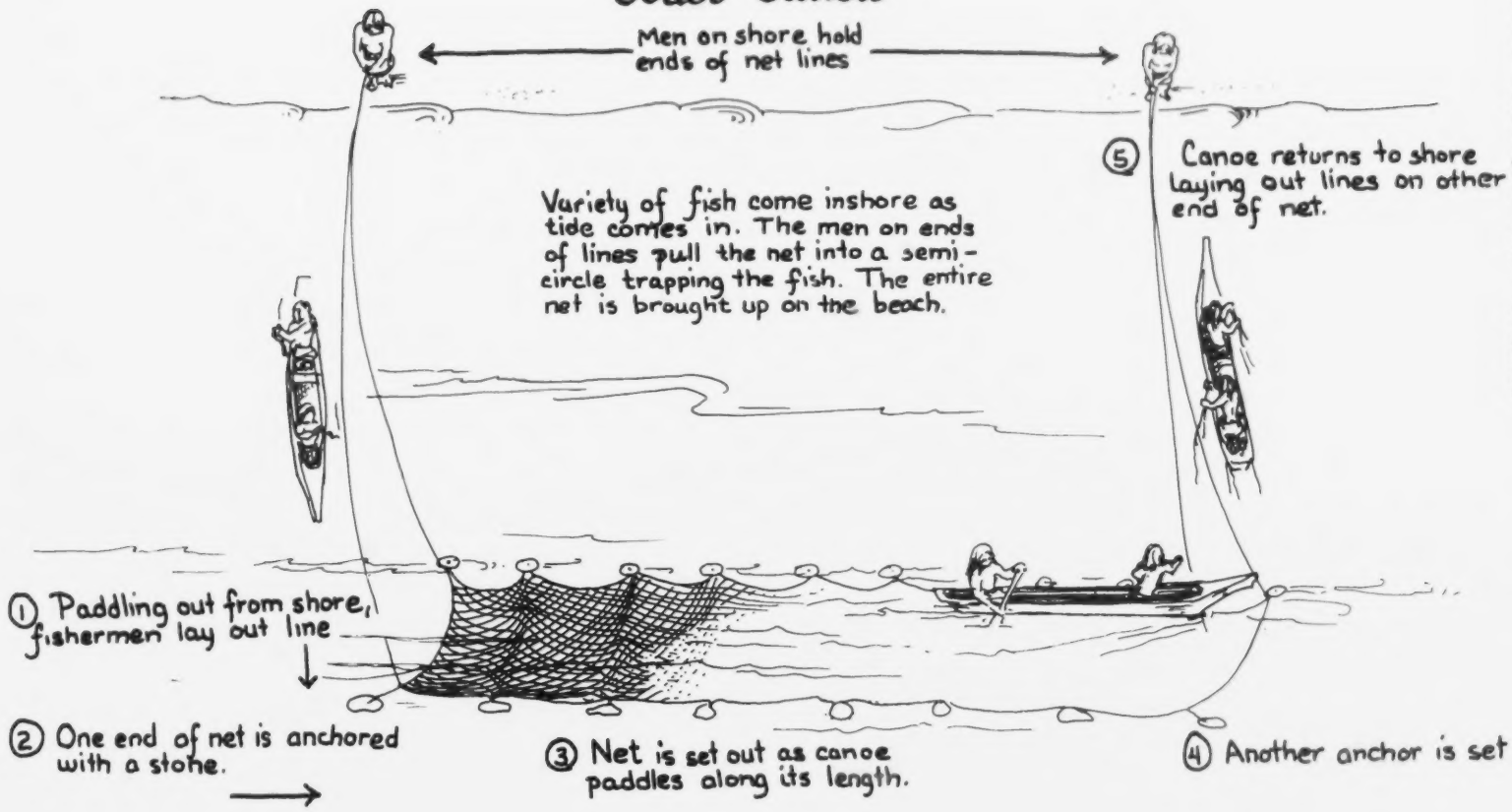
58

59

Picture #1 - Overhead Transparency

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

Beach Seine Net
Coast Salish


Men on shore hold ends of net lines
Variety of fish come inshore as tide comes in. The men on ends of lines pull the net into a semi-circle trapping the fish. The entire net is brought up on the beach.
⑤ Canoe returns to shore laying out lines on other end of net.
① Paddling out from shore, fishermen lay out line
② One end of net is anchored with a stone.
③ Net is set out as canoe paddles along its length.
④ Another anchor is set

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

62

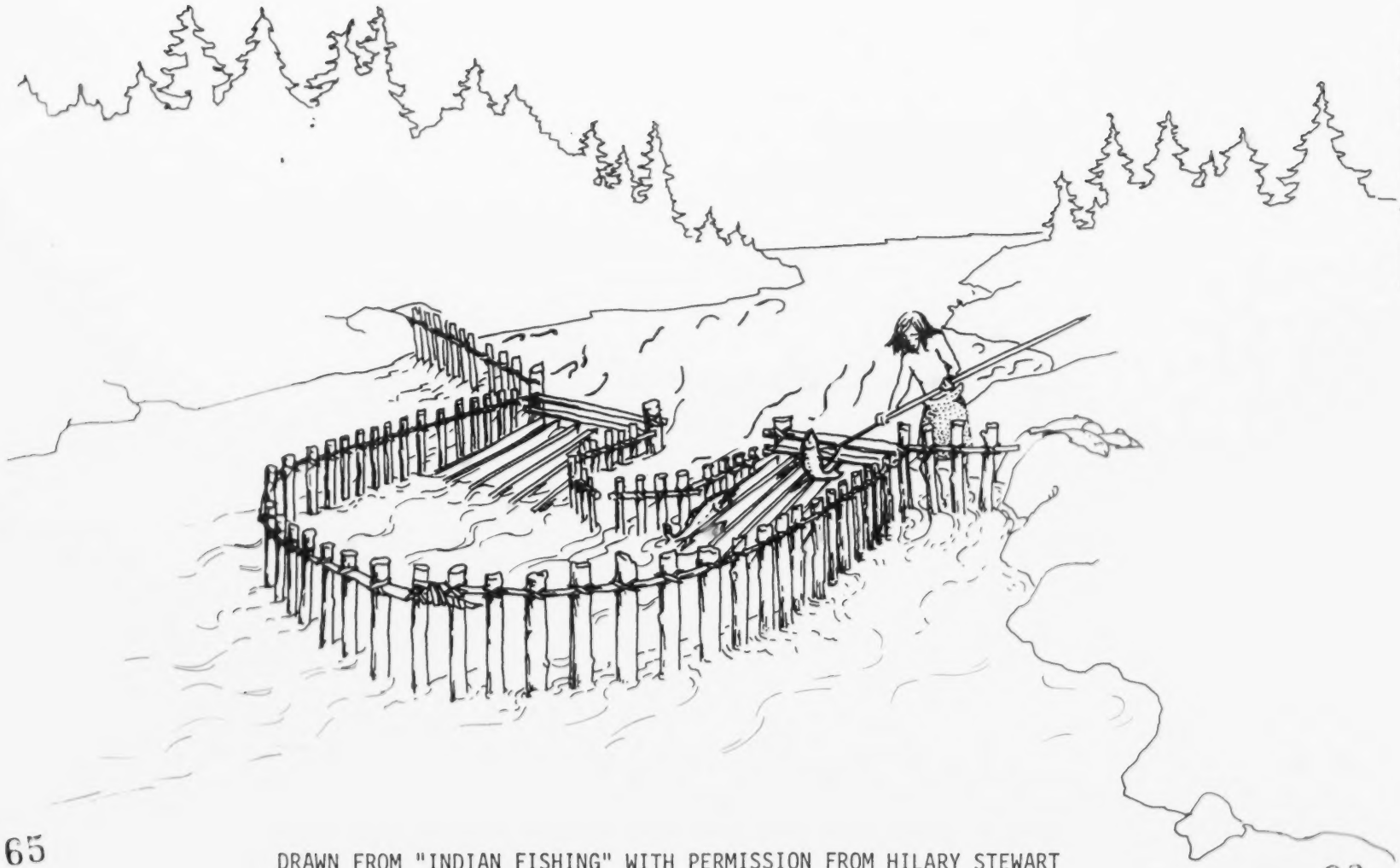
61

Picture #2 - Overhead Transparency - Student

63

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

64



65

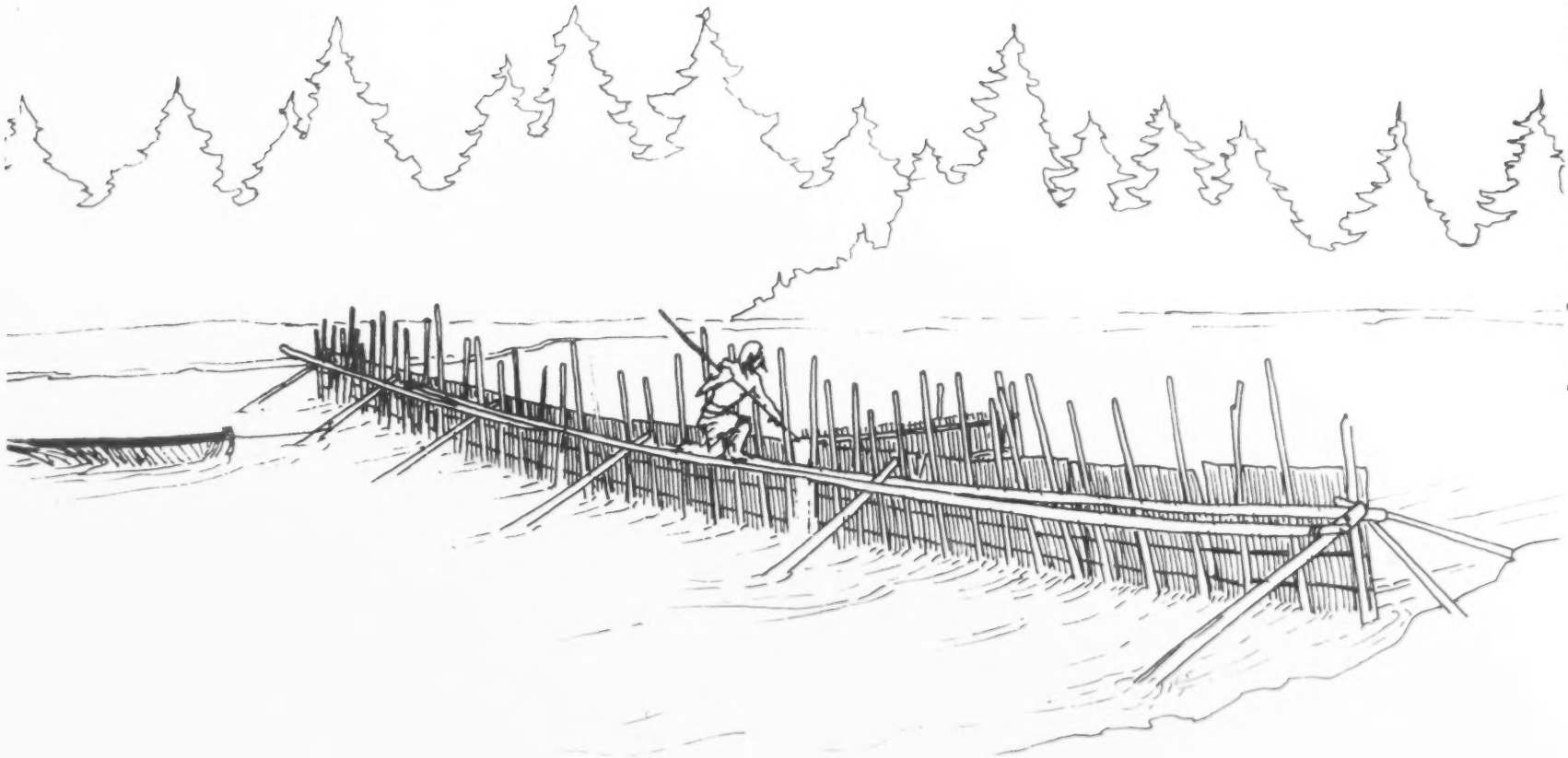
DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

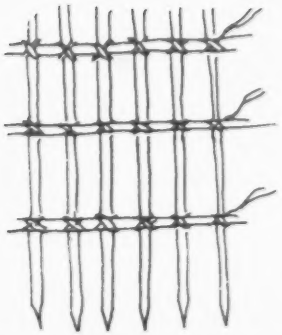
66

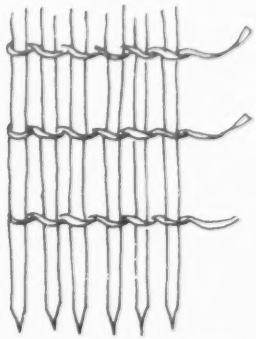
Picture #4 - Overhead Transparency

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

Picture #5 - Overhead Transparency







69

70

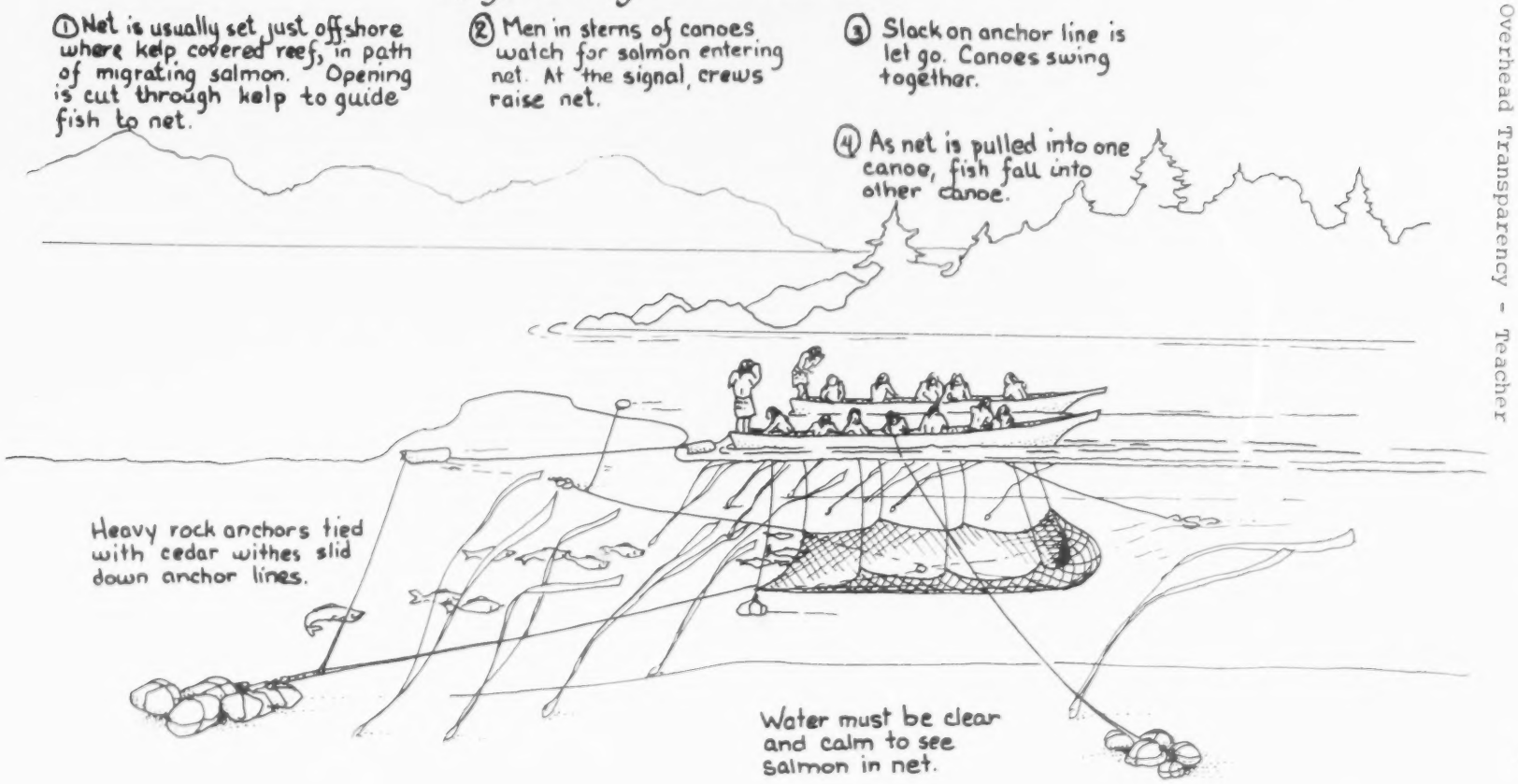
53

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

Picture #6 - Overhead Transparency

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

Reef Net of Coast Salish

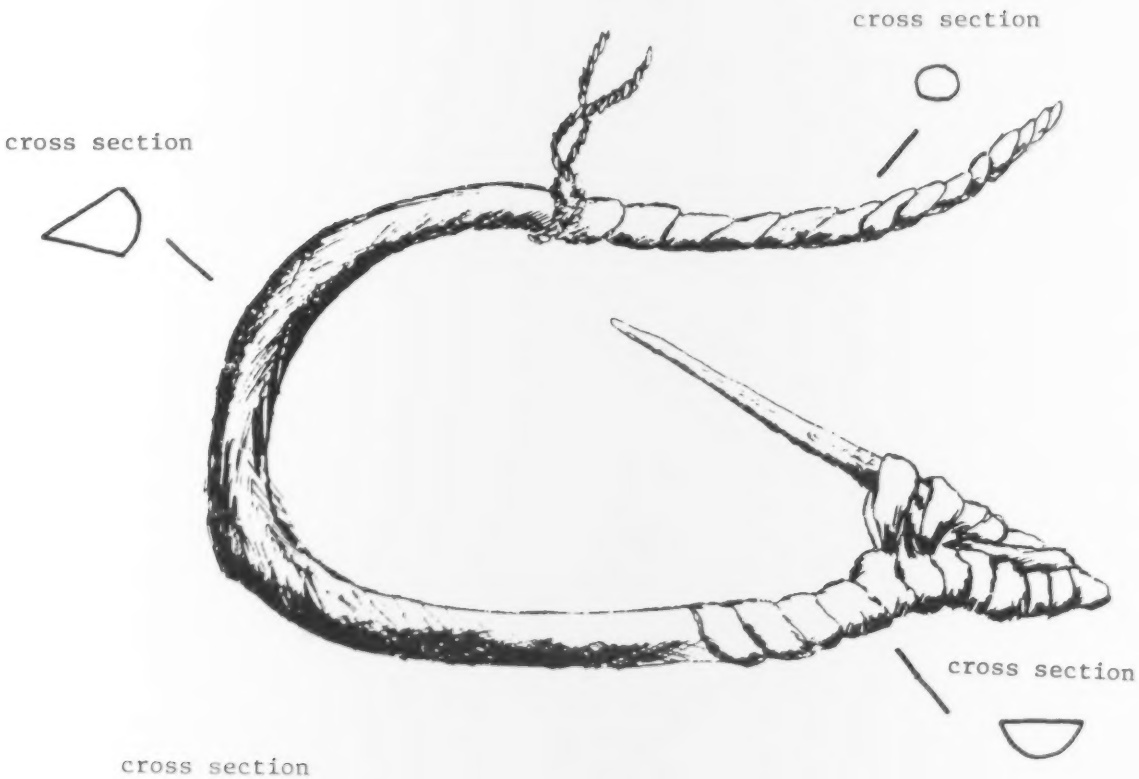

① Net is usually set just offshore where kelp covered reef, in path of migrating salmon. Opening is cut through kelp to guide fish to net.
② Men in sterns of canoes watch for salmon entering net. At the signal, crews raise net.
③ Slack on anchor line is let go. Canoes swing together.
④ As net is pulled into one canoe, fish fall into other canoe.
Heavy rock anchors tied with cedar withes slid down anchor lines.
Water must be clear and calm to see salmon in net.

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

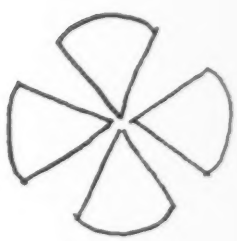
Picture #7 - Overhead Transparency - Student

DRAWN FROM "INDIAN FISHING" WITH PERMISSION FROM HILARY STEWART

Picture #8 - Overhead Transparency - Bent Wood Fish Hook



cross section
of limb



Illustrated by: William Cunningham
Credit: Board of Trustees, Makah Cultural and Research Center

NAME_____

LEGEND: DIPPER AND COYOTE

As a contrast to the more serious stories, here is a funny story about a very clever guy who is always trying to be the "big shot," always trying to do the other person in. If any good come of the messes he makes, he is always there to take the credit. His name is Coyote. Dipper is a water bird often seen at the edge or on rocks in a stream teetering or dipping up and down.

This story is said to have happened during the myth times when animals and people did not yet exist but there were only supernatural beings. The beings did very strange things that ordinary people and animals could not do. But there is a lesson in behavior that we all can learn from Coyote, for although he was a funny being, he also was a terrible one to his fellow beings.

The story has also been included to show the importance of fishing, trapping, and the reliance upon the salmon's behavior of their journey from the ocean upriver to lay their eggs. This story emphasizes, simply by its setting, that salmon and fishing/trapping are an economic base for the Puget Sound people.

Mrs. Alice Campbell, an Upper Skagit Indian of Concrete, related this version.

Dipper, a little water bird, built a big fish-trap across the river. For a whole day he worked, all by himself. When it was finished he invited a lot of people to help him fish. They caught a lot of salmon in that trap, and then they cooked it. Dipper put all the choice portions of the salmon he cooked in a long wooden tray.

Meantime, old Coyote, who lived upstream, found out what Dipper was up to. Coyote wanted fish. He was always hungry, but it was Dipper's nice tray that he wanted most. So Coyote went down to where Dipper was cooking by his fish-trap and watched. When he saw Dipper leave his tray with salmon in it to go get more fish, he stole the tray and ran away. He stopped a long ways upriver to eat the salmon. Coyote was jealous of Dipper's fish-trap, and began to make plans to destroy it. He was a great guy for wrecking things; he wanted things to change.

So after Coyote ate up all the fish, he started hitting the tray and said four times, "You're going to cry!" And it started making noises like a little child. After a time a baby appeared in the tray, like a baby in a cradle. The child was to be Coyote's way of ruining Dipper's trap. Then Coyote floated the baby in the tray on the water. It drifted downstream and landed at Dipper's trap. Dipper saw the baby in the tray, "Oh, my! There's a little child!" He could be a kind-hearted fellow. Dipper took the baby to shore where he was busy tending his fish-trap. He was all by himself and did not want to be alone.

Coyote commanded the baby, "You're going to keep crying and <u>that</u> will entertain Dipper." It did. The baby would not keep still and Dipper got very busy trying to quiet the baby on shore and tend the dam on the river, running back

and forth. But he spent more time with the baby. It was crying so.

While Dipper was busy with the baby, Coyote got his chance to break up the trap. Soon, the trap was pretty well gone.

On shore, Dipper was getting tired of trying to stop the baby from crying, and got angry with it. He threw it down hard, down onto the ground, and it turned into his own tray. He knew now. "Oh, this is Coyote's work!" He ran down to his trap, and saw it was all broken.

It had been Dipper's business to keep fish from going further upriver. But now the fish were free. Coyote boasted about what he had done and told all the people. Coyote was a bad character but sometimes he accidently did some good.

NAME_____

A FISH STORY

The Indian peoples of the Northwest coast have for the past 5000 years lived as fishermen completely in tune with the ways of the sea and rivers. These peoples invented a wide variety of methods to harvest the bounty of the sea. They were ways not known to the early Europeans that explored these shores or to the later settlers who logged, farmed, and fished.

In 1787, Captain Dixon and his crew anchored their square rigged ship in a sheltered bay and lowered a boat so that the hungry crew could catch fish quickly. The results with European gear and methods must have been discouraging. He describes the Indians' successful method for catching halibut with baited hooks, lines, and floats, and then says, "Thus we were fairly beat at our own weapons, and the natives constantly bringing us plenty of fish, our boats never set out on this business again."

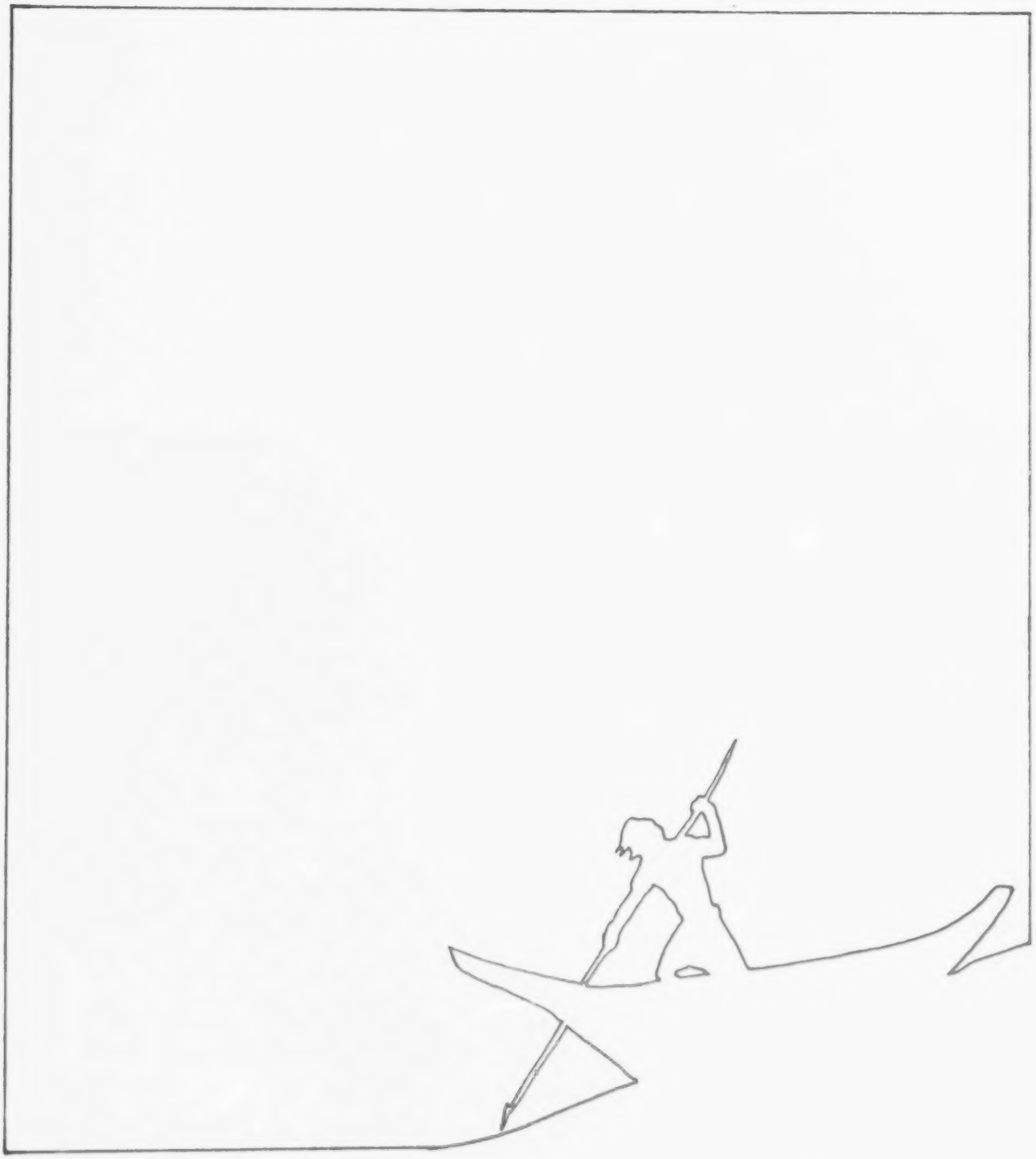
Albert Niblock wrote, in 1885, in a published report for the U.S. National Museum, "The apparent clumsy hooks of this region have been found to possess so many advantages over types used by Europeans that they are used to this day." He wistfully adds, "There is little in the art of fishing we can teach these Indians."

All peoples develop technologies that are in tune with their environment. Because all people have needs to safisfy, for example, the need for food, water. fire, for being the wealthiest and the quickest, they look to their environment for a resource--wood, fuel, other people, etc. With the proper resources at hand, and with a need in mind, the goal of inventing the appropriate technology follows.

ACTIVITIES:

Using butcher paper, cut-outs from magazines, scraps of colored paper, pens, and what other resources you have at hand, make a collage that represents the concept expressed above in "The Fish Story." Fold your butcher paper into three sections representing the following formula.

NEED + RESOURCES = INVENTION



ACTIVITY 4:
UNMAKING A ROPE
(2 DAYS)

ACTIVITY 4: UNMAKING A ROPE (2 DAYS)

CONCEPTS:

Rope making is one of the oldest technologies to all humans. In the involvement of taking a rope apart, one can understand how rope is made.

OBJECTIVES:

Following the activity the student will demonstrate his/her ability to:

1. make a rope from raw fiber
2. test for strength of rope through experimentation.

TEACHER PREPARATION:

Before class, the teacher should do the rope activity to clarify "strands," "yarns," and "fibers."

MATERIALS:

1. Assorted kinds and sizes of rope cut in two foot lengths (at least one rope per two students)
2. Scissors or knives to cut ropes
3. Buckets (one for each two students)
4. Collection of weights (washers) for each pair of students (water could be used as the weight)
5. Student handout, "Unmaking a Rope" for each student
6. Cedar bark, cedar tree limbs (see student instructions)

PROCEDURE:

1. Lead a discussion to introduce these ideas:
   a. the technology of rope making is one of the oldest technologies known to man
   b. thousands of years ago, the Indians needed fishing lines of great strength and pliability. They developed just such lines from the materials of the land and water around them
   c. ask students what they know about how rope is made.
2. Explain that to better understand and appreciate the early Indians' technology, the students will compare the Indians' methods to rope-making methods used today.
3. Pass out student handout "Unmaking a Rope"
   -go over directions
   -pair students with partners
   -distribute rope to students
4. Students complete Experiments A, B, C, and Comparison sheet. (For Experiment C, display cedar branch to be certain students can identify a cedar tree.)
5. Show film, "Red Man-Red Cedar"

EXTENDED ACTIVITIES:

1. Traveling Collections
2. Museum Tours
3. Places to Visit
4. Film List

NAME_____

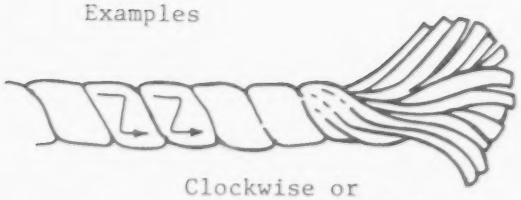
UNMAKING A ROPE

EXPERIMENT A. Twists in a Rope

1. Set the rope in front of you to take a good look at it before taking it apart.
In the space below, draw a picture of what the rope looks like. Here are some examples below.

Your drawing

Examples



Clockwise or
"z" twist (Z)

Counterclockwise or
"s" twist (S)

2. In which direction or which twist does your rope have?

_____

3. Now begin to take your rope apart--only a few inches. As you untwist it, you should have a number of strands, perhaps 2, 3, 4, or even 6.
How many strands are in your rope?_____

4. Untwist your entire rope, and use only one strand for this next drawing.
Draw what your strand looks like.

Your drawing

5. In which direction or which twist does your strand have?

_____

6. Do all your other strands have the same twist?_____

NAME_____

7. With only one strand, begin to untwist it. You should now find a number of yarns. How many yarns do you find?_____

   (Note: Some ropes may not have yarns but may have fibers as the next step. Fibers are the lowest unit possible.)

8. Draw a picture of the yarn.

Your drawing

9. In which direction or which twist does your yarn have?

   _____

10. Now untwist one yarn. You should now have only fibers. How many fibers do you have?_____

11. Review question: What can you say about the directions of twists? Why do you think this is so?_____

    _____

    _____

    _____

    _____

UNMAKING A ROPE

EXPERIMENT B. Testing for Strength

1. To test for strength, first loosen all the fibers in one of the yarns. Be careful when spreading them apart. Once the fibers are untwisted, slowly pull them apart. Now put the fibers together again and twist them together about 10 times. Test now to see how easily they pull apart. Write your comparisons between the two. Which was easier to pull apart? Why?

2. Take five long fibers and put them together but do not twist them. Put these fibers through the handle of a small bucket or can. Begin adding weights to the bucket slowly until the fibers break. How many weights did it take to break the fibers?_____

3. Now take five new long fibers and twist them together 10 times. Again in the same manner, test to see how many weights it will take to break the fibers. How many?_____

4. Review question: What are your conclusions about fibers and strength?

NAME_____

UNMAKING A ROPE

EXPERIMENT C. Making Cedar Bark Rope and Fishing Lines

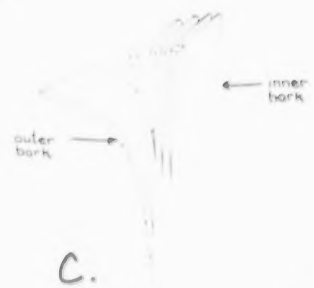
Now that you have untwisted a rope and tested its strength, you are best equipped to make a rope yourself.

The innermost layer of the two layers of the cedar bark is the material needed for this experiment. One of the qualities which makes both cedar wood and bark so useful is its straight grain. This allows cedar to be easily split or stripped.

A. Bark was stripped from the tree by making a shallow horizontal incision in the trunk and with alternate hands pulling off long strips.
B. Then the two layers of bark were separated so that the soft inner layer could be used.
C. It is thick enough to be separated into several layers.

A.

B.



C.

Separate the layers of bark keeping a strip of inner bark about two feet long. Split the inner bark into thin strips about ½ inch wide. Soak the strips in water to make them pliable. Then twist three of these thin lines into a strong rope. Cedar bark used in this way by the Indian fishermen was pliable and strong enough for halibut line. (Halibut weigh up to 500 pounds!)

Rope from Cedar Limbs

Limbs were stripped of leaves, soaked in water, and twisted into rope. This rope had remarkable strength. Single limbs worked to pliability were used to tie or sew corners of wooden boxes or the cross pieces of canoes.

NAME_____

Making Cedar Bark Rope and Fishing Lines

Compare the Indian rope to the modern rope.

a. How are they alike?_____

_____

_____

b. How are they different?_____

_____

_____

c. Is one method of rope making better than the other? Why or why not?

_____

_____

_____

_____

Extended Activity

NAME_____

MAKING FISHING LINES

Indian fishing lines were made from a variety of materials ranging from the fibers of nettle stalks to strands of human hair. The two mentioned in this handout are from bull kelp and inner cedar bark.

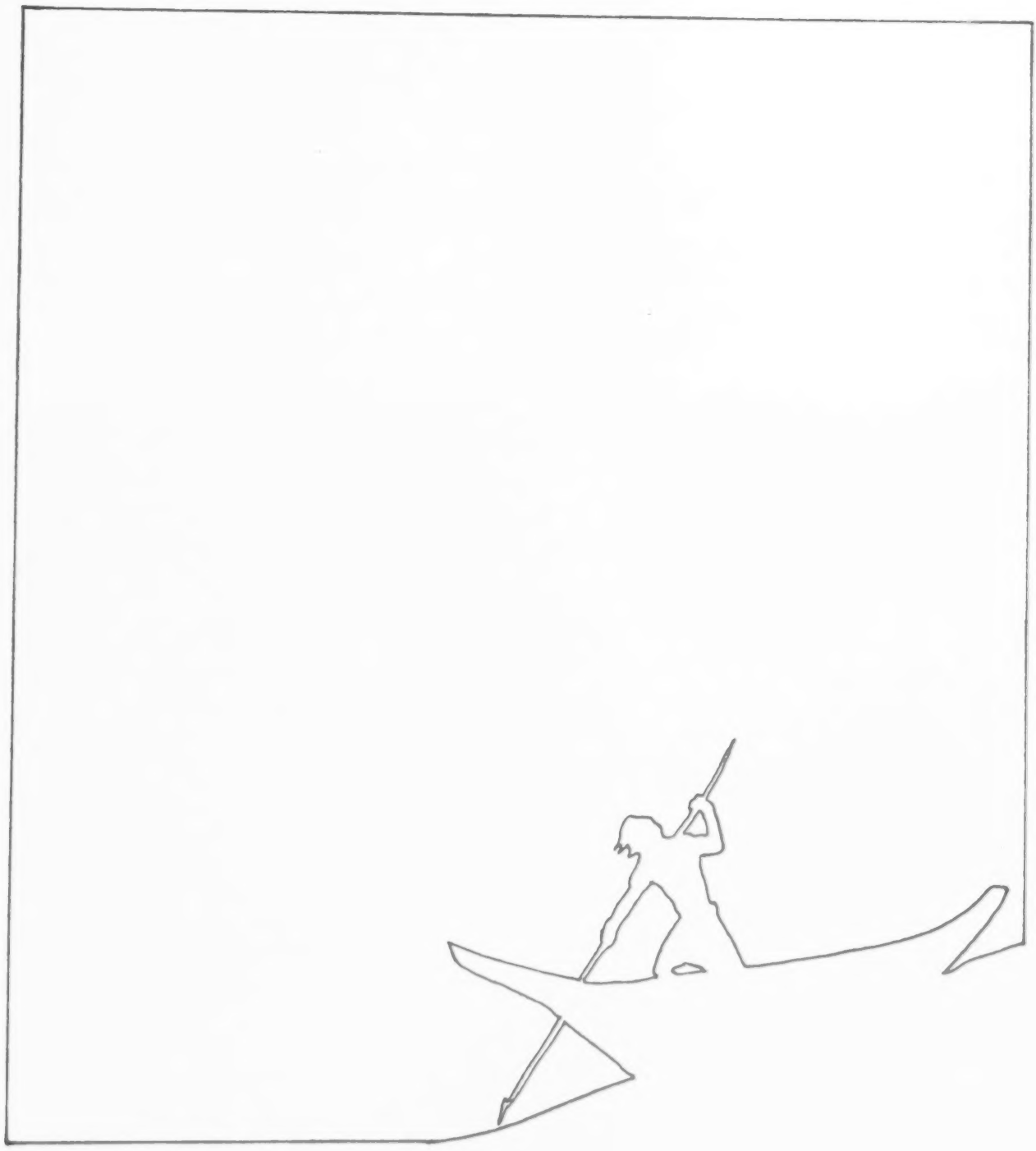
Bull Kelp Line

Material: bull kelp, a seaweed found in rocky areas along the whole coast

It sends out a stem up to 81 feet long and 3/8 inch in diameter at the base. It is cylindrical, solid and gradually increases in thickness. The stem becomes a hollow tube ending in a gas-filled bulb at the top. The bulb serves as a float to hold the seaweed up.

Procedure: The solid part of the stem is soaked in fresh water. The stem is then stretched, twisted for extra strength, and tied with a "fisherman's knot." It blackens and shrinks to a thin line when dry.

It is tough and wire-like, but when put in water it returns to the original thickness within an hour and maintains the twist.



ACTIVITY 5:
CONSTRUCTION OF HOOKS
(5 DAYS)

ACTIVITY 5: CONSTRUCTION OF HOOKS (5 DAYS)

CONCEPTS:

In any technology, a great deal of expertise is required in the understanding of materials and their capabilities. This knowledge is gained through experimentation. Puget Sound Indians demonstrated their expertise in the construction of the bent wood fish hook.

OBJECTIVES:

Following the activity the student will demonstrate his/her ability to:

1. make an actual bent wood fish hook as closely as possible to the early techniques
2. test a hypothesis of what material is best suited to making a bent wood fish hook.

TEACHER PREPARATION:

1. Read over experiment and select a site for doing the experiment.
2. Gather materials and equipment necessary for this project.

MATERIALS:

1. small branches approximately 8-10 inches long from four different trees--greenwood (spruce, alder, cedar, fir.) The branches should be 1/2 to 3/4 inch in diameter and split into quarters lengthwise. One set per 2 students.
2. nails: 56 nails per 2 students
3. hammers: 1 per 2 students (brought from students' homes)
4. knives: 1 per student (brought from home), must be sharp--dull knives cause more accidents.
5. wood scraps about 8" x 8" x 3/4" (this last measurement can vary)
6. lard or bacon fat
7. rope or line from previous activity
8. hot plates (at least 2)
9. steaming equipment (double boilers, metal colander - at least 2)
10. masking tape with water resistant pens
11. student handouts:
    - "Bent Wood Fish Hook" (Activity 3, #8)
    - "Wood Chart"
    - "Procedures for Making a Bent Wood Fish Hook"
12. carbon paper for tracing hook pattern

PROCEDURE:

1. Pass out student handouts on "Procedure" and go through the process step by step.
2. Pass out materials making sure the pieces of wood do not get mixed up. It is best to set up a work area in back of the room where all the materials are sorted in large containers, labeled, and easily seen for availability.
3. Have students label their sticks with their names and type of wood.
4. Using the "Bent Wood Fish Hook" picture as a pattern, have students trace the shape of the hook on the wood boards with carbon paper.

5. Have each student whittle each of the branches so that they are pointed at one end and cut blunt at the other. (See "Bent Wood Fish Hook" pattern.)
6. Pass out "Charts" and have students make and state their observations about the pieces of wood. They should note any characteristics of the wood they notice while whittling the wood.
7. Have students soak sticks in fresh water before steaming. Steam 15 minutes one batch at a time.
8. Students should pound their nails into the boards--14 per board, so that they are placed across from one another in two by two fashion.
9. Have one team member take hooks out of steamer and immediately place in molds.
10. This procedure is repeated for each type of wood--Steps 7, 8, and 9.
11. After hooks have cooled, have students remove them from their molds one at a time, observing what happens to the bent wood hook. Write down observations.
12. Finally, have students reheat the products which are to be kept, preferably with dry heat, and grease with lard.
13. Have students rate which type of wood makes the best bent wood fish hook. Tally these on the board so they can see what the results are for approximately 30 different experiments.
14. Lead a discussion with the students about the concept: a basis of a good technology is knowing the material and their capabilities and the experimentation that must take place.
15. (Optional) Students may add line to their fish hooks and lash on a bone barb which they bring from home. Bone is very hard and it is best if an adult handle this project. Use green bone--that which is not cooked or dried out.

NAME _____

WOOD CHART

	Fir	Spruce	Alder	Cedar
Characteristics of the wood before treatment				
Hypothesis as to which wood will make best hook				
Bent hooks				
Your rating				
Total rating conclusions:				

93

NAME _____

PROCEDURE FOR MAKING BENT WOOD HOOKS

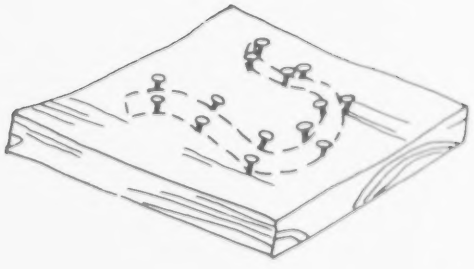
1. Have in mind what shape your end product will look like.

Use pattern of Bent Wood Hook from Activity 3.

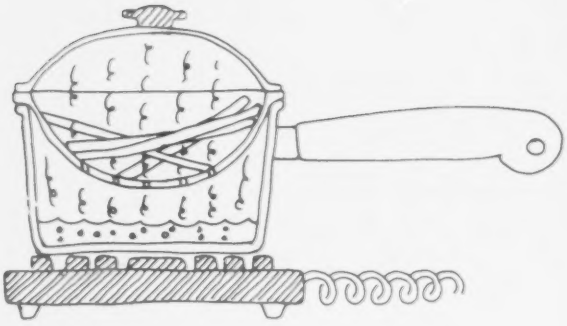
2. Whittle each stick in desired shape. Remember it is pointed at one end and blunt cut at the other. The cross-section shape of the stick should be triangular. (Remember to label different wood by its name.)

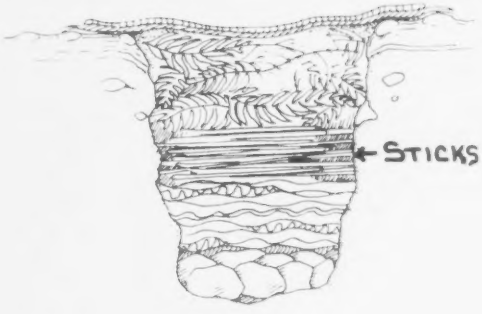
3. Soak sticks in water for approximately 15 minutes. Early Indians used a bent wood box to do this. (You may use a pot of water.)

4. Trace your pattern on to the scrap boards and hammer in nails. Wooden pegs were originally used instead of nails.

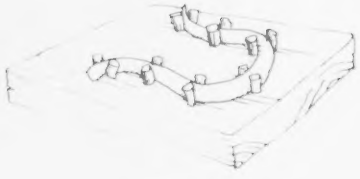


5. Steam wood for about 15-20 minutes. In early times, this was done in a pit with red hot rocks in the bottom, then a layer of seaweed, the sticks, then another layer of seaweed and green leaves, and finally covered with dirt. It was very important that no steam could come out. Even the tiniest leak will reduce the heat. (You will use a double boiler with a colander over a heating element. See graphic.)

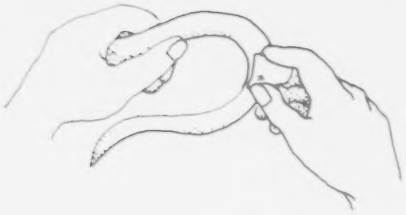




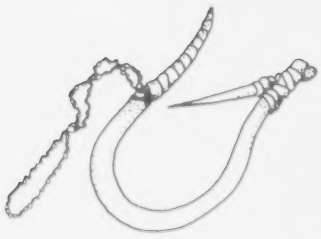
6. Remove sticks from the steamer and immediately, but carefully, place in mold. Keep in mold until cool.



7. Reheat hook in dry heat and grease with lard.



8. Lash bone or hardwood point to the flatside of the hook.



Extended Activities NAME_____

WORKING WITH CEDAR BARK

I. It might be said that the great cedar that once dominated the forests in the Northwest Coast represented life to the Indians here because of its tremendous versatility. The cedar can be recognized by its great height as well as its rough outer bark which was used probably for fuel.

II. The inner bark of the cedar tree was of great use to the Indians. While it was used in its natural state for some things, it often had to be processed for others. Just as we would not wear clothing of raw wool, the Indian would not use unprocessed bark for clothing and blankets.

The straight grain of both the cedar wood and bark made it useful. It splits easily. No single item was so ubiquitous in the Indian household. Shredding of bark was the constant busy work for women (done with a chopper-dull blade of wood or bone). It was shredded fine enough for use as towels; a coarser grade was plaited into skirts and capes and later into complete dresses. In the unshredded state, cedar bark was cut in strips of varying widths, the broader ones being plaited to serve as dishes. Also bark was used to line cooking pits. Wood, limbs, bark, leaves and roots were used. Wood was used for: planks for houses, rails, shingles, posts, canoes, oars, baby boards, buoys, spinning wheels, boxes, buckets, torches, arrow shafts, fish traps, and firewood. The limbs were used for baskets and ropes; bark for baskets, mats, lines, and strings, canoe bailers and when beaten, for skirts and hats, capes, beds for infants, drapes, napkins, blankets; gum and leaves for medicine; and roots for baskets.

III. The inner bark is a very thin layer between the sapwood and the rough outer bark. The Indians knew that bark came off the tree most easily in the spring, when the sap is running. A horizontal cut about 6-8 inches long is made in the tree about three feet from its base. The bark is then pulled away from the tree. (See illustrations in student hand-out, "Making Cedar Bark Fishing Lines", Activity 5.) Because the grain of the wood is so straight, the width of the bark can be maintained as the piece is torn.

The outer bark is then scraped off the inner bark before the sap dries. The inner bark is rolled up and stored in a dry place. The long, tough fibers make this inner bark ideal for basketry, mats, clothing and rope.

As a woven article is needed, a piece is cut from the dried bundle and soaked in water for several hours. The thin, dry bark absorbs so much water that it becomes thick and very pliable and can be split into long, thin pieces ready to be worked.

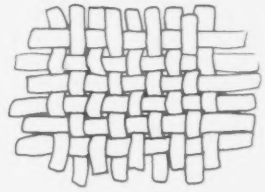
93

NAME_____

WORKING WITH CEDAR BARK

Part I: Mats - Mats were used on the floor and as wall partitions. Broader strips were plaited and used for dishes.

Directions: Make a small cedar bark plaited mat



Materials:
1. cedar bark
2. cutting tool
3. water

Procedure: (Steps 1 and 2 should be done in advance of activity)
1. Soak the bark for several hours to make it pliable.
2. Separate the inner bark from the outer bark
3. Cut inner bark into strips about ½" wide and 4-6" long
4. These strips may be layered into three or four thinner strips
5. Plait (or weave) these strips into a mat
   (alternate over one-under one method)

Part II: Baskets - Used for fish, clams and the gathering of berries and roots

Directions: Make a small cedar bark basket using a method that has been used by these Indians for hundreds of years. Many styles of weaving can be used: we'll use the "flat weave" and what is known as "twining".

Materials:
1. cedar bark
2. cutting tool
3. water

Extended Activities NAME_____

Procedure:

1. Pick out six equal widths and lengths (½¼ x 4¼) of inner bark from water in which it has soaked for several hours
2. Weaving
   The flat weave consists merely of under one-over one, alternating.

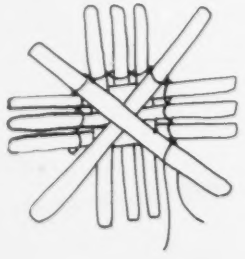
   The bark strips extending from the flat weave are called "spokes". These become the sides of the basket which are drawn up by the amount of tension as we actually weave the sides.

   Weave the bottom of your basket.

3. Twining
   Before we get many things going at once, let's look at a set of "exaggerated spokes", your fingers. Take a long strip of cedar bark and loop it in half, one end longer than the other. Loop around first finger, twist, (always in the same direction) loop around next finger pulling it tightly next to first one, and continue. This method of weaving is called "twining".

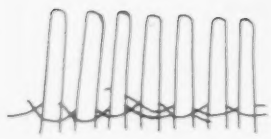
   The shape of the basket is determined by how much tension your twining bark feels.

4. Additions, Alterations
   The spaces between groups of spokes have to be filled in to make a uniform basket. Strips of bark that are cut at equal widths can be incorporated by simply placing the new spokes crosswide across the flat weave and twining it in with the other spokes. These can be added, as needed, at any stage while you are twining. Remember, the twisting always goes in one direction which gives the basket a tidy, uniform look.

NAME_____

4. There is a very definite reason that the long "twining strip" must be looped with one end longer than the other. You will eventually run out of this piece as you continue twining. As this happens, you must simply add on: lay about 2" of one end of a new strip over the old one. Treating them as one piece, continue to twine.



Soon, the new piece has been twisted in and has become part of the basket. If the original looped piece had two equal lengths, you'd run out of both at the same time, making it nearly impossible (not to mention, frustrating) to hang on to all the ends.

With a long strip of cedar bark, begin twining the spokes of your basket.

Basketry directions courtesy of Pam Phillips, Pacific Science Center.

Extended Activities

NAME_____

PLANK HOUSE CONSTRUCTION

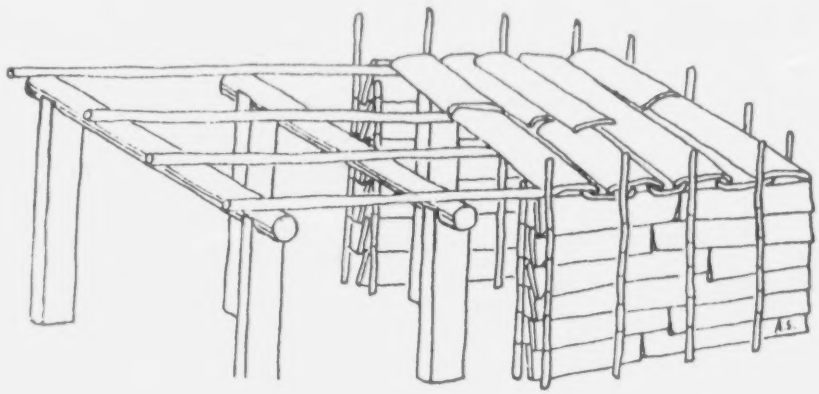
Directions: Construct a model house adapting the authentic Indian methods and materials to those you have available (e.g. cardboard for planks, string for cedar withes, sticks for poles).

Materials: Cedar plank, (cut from large cedar trees with wedges of horn or wood and stone hammers) cutting tool, cedar ropes

Procedure: Vertical poles were installed permanently. Horizontal house planks were slung on ropes (cedar withes) tied between poles. Roof planks lipped like tiles to shed water effectively. There was a removable board on top to let smoke out. Roof and siding could be removed and assembled on another house frame of poles near a fishing area during the appropriate season. Entire villages moved from river to river throughout the fishing season following the fish as they made their annual runs up the rivers at various times of the year.

The Plank House might be very long (100-200 feet) and 35-45 feet wide, sometimes housing an entire village. It was partitioned off with mats, but 3-4 families shared a hearth.

Southern style (Salish)



Typical house type illustrating both framework and external appearance.
--Drawing courtesy of Thomas Burke Memorial Washington State Museum.

Extended Activities

CANOE BUILDING

NAME _____

Perhaps the best example of Puget Sound Indian woodworking is the canoe. Several types were used. Design varied considerably according to area and use. (Travel canoes were larger than fishing canoes.)

Directions: Construct a model or draw to scale and illustrate the steps involved. Adapt the authentic Indian methods and materials to those you have available.

Materials: Half a red cedar log of length up to 60', adze, chisel, stone, maul, needle, cedar withes

Procedure:

1. Shape outside of hull as desired with adzes and chisels.
2. Hollow inside by carefully splitting, chopping, and controlled use of fire if necessary, to give a graceful and seaworthy form.
3. To widen sides, put water in canoe (depth of a few inches) and red hot stones. (Stones are heated in fire, then placed in water to make it boil.)
   Build a slow fire under the sides of the canoe. This steaming makes the canoe spread apart easily and flattens the bottom. Wood thwarts are used to spread the sides apart to final shape and then permanent thwarts are attached. Use care not to let canoe crack from heat.
   Control thickness of hull with plugs. Drill hole and insert wooden plug of equal length. When inner surface of hull reaches plug, the proper thickness has been reached.
4. Bow and stern pieces were fitted and sewn to hull with cedar withes. If a canoe cracked it was patched with pitch applied with hot rocks handled with tongs.

Note: This particular canoe is of Nootka (S.W. Vancouver) design, but materials and techniques of construction are the same as those used in Puget Sound.

--Drawing courtesy of Thomas Burke Memorial Washington State Museum

Extended Activities

NAME_____

MAKING A STEAMED BENTWOOD BOX

These boxes were made by steaming and bending one cedar slab to form the four sides of the box, using no nails, screws or glue. They were used to store tools, clothing, ceremonial masks and as they were water-tight (see procedure for making small bentwood hooks) were sometimes used for cooking by the stone boiling method. (Hot stones heated in the coals of a fire were placed in the box of water. When the stones cooled, they were removed and more hot ones put in until the water boiled.)

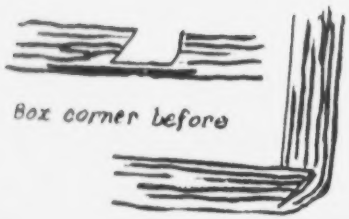
Directions: Either make an actual bentwood box or a replica of one from cardboard. Adapt the authentic Indian method and materials to those you have available. (Could use a piece of cardboard,

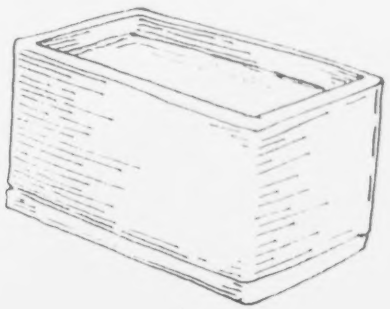
score the corners with a knife to bend, and sew the fourth seam and bottom together.)

Materials: 1 long cedar plank and 1 slab for bottom, pegs and a drill or twine, a needle, carving tool, water, heat

Procedure: Cut the cedar plank the length of the perimeter you want the box to have (¼-inch or less in thickness). While the cedar plank is wet, carefully cut angled grooves where the corners will be and steam for one hour. While the plank is still in the steam, slowly bend at the grooves. Sew or peg the seam of the fourth corner. Peg or sew the bottom piece on. Make either a flat or a lipped-edge top.

--Drawings courtesy of Thomas Burke
Memorial Washington State Museum





Teacher Information Sheet

TRAVELING STUDY COLLECTIONS
UNIVERSITY OF WASHINGTON
THOMAS BURKE MEMORIAL WASHINGTON STATE MUSEUM
Education Division
Seattle, Washington 98105

The Museum offers a variety of study collections in science and social studies for use by the schools in the state. The collections contain artifacts, specimens, models, and written information on the subject presented. Some collections contain supplementary books and illustrations. Collections are checked out for two-week periods.

School districts share with the Museum the cost of processing and maintaining the collections. The fee for a two-week period is six dollars ($6) for all collections. The teacher or school district is responsible for picking up and returning the collection to the Museum. For schools unable to pick up, the Museum will mail the collections. The fee is eight dollars and fifty cents ($8.50). The school pays the return postage to the Museum. Collections may be mailed at the Library Materials rate.

Collections MUST be back in the Museum on the date stamped inside the box cover and on the shipping tag. Because of the very heavy scheduling for most of the collections, we ask that teachers cooperate by returning collections on time. For return mail, allow a minimum of two days for delivery.

The school and teacher using the study collections are responsible for the care of the material in the classroom and the careful packing and return to the Museum. The teacher or school will be charged for any necessary repair or replacement of missing or damaged items.

TO ORDER

Four school districts--Seattle, Shoreline, Highline, and Bellevue--maintain their own pickup, delivery, and return service. The school districts are billed for the collections.

Seattle - Write or call the Education Division or the Museum to place order for collection, 543-5591. Deliveries are scheduled every other Monday.

Shoreline - Order through the librarian at your school. Deliveries are scheduled every two weeks.

Highline - Write or call the Education Division of the Museum to place order for collection, 543-5591. Deliveries are scheduled every week.

Bellevue - Detailed directions for ordering can be found in your copy of Classrooms Unlimited. Deliveries are scheduled every Tuesday and Thursday.

Other School Districts - Write to the Education Division of the Thomas Burke Memorial Washingtion State Museum, University of Washington, 98105, or call 543-5591. Include in your request: name of collection, approximate dates desired, school, address. Send appropriate fee, $6.00 if picked up, $8.50 if mailed.
PLEASE MAKE CHECKS PAYABLE TO THE UNIVERSITY OF WASHINGTON. RESERVATIONS FOR COLLECTIONS CANNOT BE CONFIRMED UNTIL RECEIPT OF PAYMENT.

SOCIAL STUDIES COLLECTIONS

These collections contain museum specimens, and authentic reproductions of typical household objects, tools, and clothing.

INDIANS (NORTHWEST)

House model, wood-working tools, and household implements of the Indians of the North Pacific Coast from the Canadian border through southeastern Alaska.

INDIANS (EASTERN WASHINGTON)

Tools, household implements and clothing.

INDIANS (NORTH AMERICA)

Two or three artifacts from each of the major culture areas of North America.

INDIANS (PUGET SOUND)

A canoe model, cattail mat, wood-working tools, household implements, and a pair of dolls dressed in aboriginal costume.

NORTHWEST INDIAN ARCHEOLOGY

Typical artifacts of this region over 10,000 year time period.

NORTHWEST INDIAN DANCE

Replicas of the northern (not Puget Sound) Northwest Coast Indian dance regalia.

WASHINGTON STATE HISTORY

Historical objects of the Pioneers, and four dolls dressed in everyday clothing of 1850.

Teacher Information Sheet

PLACES TO VISIT

Bellingham

LUMMI INDIAN AQUACULTURE PROJECT. Six miles northwest on Lummi Reservation. Commercial fish and shellfish production plant. Open for guided tours throughout the year. Write or call for group appointments. Lummi Indian Tribal Enterprise, Marietta, Washington 98268. (206) 743-8180.

LUMMI INDIAN WEAVERS. Seven miles northwest on Lummi Reservation. An all Indian enterprise, manufacturing a variety of cotton and synthetic fiber products on four-harness hand looms. Open June to Labor Day, daily 9 to 8; Labor Day through May, Monday through Friday, 9 to 5.

WHATCOM MUSEUM OF HISTORY AND ART. 121 Prospect Street. Housed in a restored 1892 building; exhibits of Indian artifacts, state history and art. Open Tuesday through Saturday, 12 to 6, Sunday, 1 to 5.

Bremerton

KITSAP COUNTY HISTORICAL MUSEUM. 837 4th Street. Houses exhibits on local history. Open Tuesday through Sunday 1:30 - 4:00; free.

Cashmere

PIONEER VILLAGE AND WILLIS CAREY HISTORICAL MUSEUM. Recreates the history of the Columbia River Indians before the arrival of the first pioneers.

LaConner

SWINOMISH FESTIVAL. Swinomish Reservation. Baseball games, Indian stick games, dances and salmon bake. Memorial Day.

FISH PROCESSING PLANT. Swinomish Reservation.

Lummi Reservation

LUMMI STOMISH WATER CARNIVAL. Canoe races, Indian dances, games, salmon barbeque. International war canoe races. June, during first two weeks (dates depend on tide.)

Maryhill

MARYHILL MUSEUM OF FINE ARTS. Six miles west of Maryhill on U.S. 830. Outstanding collection of Indian artifacts. Open March 31 through November 15. Admission charge.

Marysville

TULALIP TRIBES TREATY DAYS. Tulalip Reservation. Commemorating the signing of the Point Elliott Treaty. Features ceremonial dances, smoked salmon feast. January.

Teacher Information Sheet (cont'd)

Mukilteo

POINT ELLIOTT TREATY SITE MONUMENT. On January 22, 1855, Indians from surrounding tribes ceded lands to the U.S.

Neah Bay

MAKAH DAYS. Makah Reservation. Commemorating acquisition of citizenship by the Makah Indians, ceremonial dances, Indian games, and traditional feast. Third weekend in August.

MAKAH CULTURAL AND RESEARCH CENTER. Artifacts on display from Ozette Dig. Museum closed on Mondays. For reservations, call 206-645-2711.

Oakville

CHEHALIS TRIBAL DAYS. Chehalis Reservation. May 29, 30, and 31.

Ocean Shores

NORTHWEST COAST MUSEUM AND GIFT SHOP. P.O. Box 366, Ocean Shores, Washington 98551. Quinault Indian Exhibit. Individual and group tours. Admission charge.

Port Townsend

JEFFERSON COUNTY HISTORICAL MUSEUM. City Hall, Old Court Room.

Redmond

NORTHWEST INTER-TRIBAL INDIAN DAYS CELEBRATION. First weekend in August. Marymoor Park.

San Juan Islands

ORCAS ISLAND HISTORICAL MUSEUM. Center in village of Eastsound. Indian artifacts. Museum building is composed of several old homestead cabins.

Seattle

BLAKE ISLAND MARINE STATE PARK. Four miles west of Seattle. Features Tillicum Indian Village where authentic Indian arts and crafts are displayed. Phone 206-EA2-6444 for information.

MUSEUM OF HISTORY AND INDUSTRY. McCurdy Park on Lake Washington, 2161 East Hamlin Street. Indian artifacts, pictures. Set of 55 slides on Washington State Indians available to teachers in King County.

UNIVERSITY OF WASHINGTON INTER-TRIBAL POW WOW. Hec Edmundson Pavilion. Last weekend in April.

THE SEA MONSTER HOUSE. Pacific Science Center. Reconstruction of a Kwakiutl Family House; contains many artifacts and exhibits of early Indians' daily life. For more information, contact Pacific Science Center, 206-625-9333.

Teacher Information Sheet (cont'd)

Museums/Libraries

State Capitol Museum, Washington, 211 West 21st Avenue has a permanent display of some Indian material and more in storage. Often it has special programs and exhibits. A membership will keep you informed by newsletter of events of interest. A growing collection of photographs and slides of Indian art. Has sponsored Evergreen interns. Located near the Capitol Campus in Olympia.
Hours - Tuesday - Friday 10-4, Saturday - Sunday 12-4.

Washington State Historical Society, Tacoma, Washington, 315 North Stadium Way, has a reference library with Northwest material including photographs, books, and clippings. A large portion of fourth floor features displays of Indian artifacts.
Hours - Tuesday - Saturday 9-4:30.

Thomas Burke Memorial Washington State Museum at University of Washington campus features the finest display of Northwest Coast material in the state. To accompany the exhibit is a useful exhibit Guidebook with notes on manufacture of various items on display.
Hours - Tuesday - Saturday 10-4:30, Sunday 1-4:30.

In addition to these major collections in western Washington, smaller museums and historical societies often have fine collections of artifacts, photographs, and manuscripts, and may also sponsor interns.

Some of these worth knowing about and checking with as you pursue your studies are:

Sidney Museum and Arts Association
731 Prospect Street
Port Orchard

Cowlitz County Museum
4th and Church Streets
Kelso

South Thurston County Historical Society
P.O. Box 339
Tenino

Lewis County Museum
1070 Washington
Chehalis

Polson Park Museum and Historical Society
1611 Riverside
Hoquiam

Dupont Historical Society
Box 5
Dupont

Teacher Information Sheet (cont'd)

Renton Historical Society
508 Cedar Avenue South
Renton

Clark County Museum
1511 Main Street
Vancouver

Kitsap County Museum
Silverdale

King County Historical Society
6046 Lake Sammamish Parkway N.E.
Redmond

ERZA MEEKER Historical Society
321 East Pioneer
Puyallup

East Grays Harbor Historical Society
Route 1 Box 130
McCleary

Teacher Information Sheet

SUGGESTED FILM LIST

Men and the Forest, Part 1: Red Man and The Red Cedar (12 minutes)

The purpose of this film is to show how the coastal Indians used the western red cedar as part of their environment for food, clothing, shelter, transportation and art. The relationship of present day Indians to the old culture is portrayed through demonstrations of how things were done in the old culture. Through these scenes, the student gains an appreciation for the high degree of skill which the early Indians had in using the cedar tree, and how many ways that we use the tree today were not originated by the white man, but the red man equaled and even surpassed our modern culture in ingenious and creative use of their environment. Available at Seattle Public Library.

Men and the Forest, Part II: The Cedar Tree (11 minutes)

This film shows how the uniqueness of the Cedar Tree contributes to man: straight even grains and natural oils which dramatically reduce rot. The tree yields many "split cedar products" the basic one being the shake. The Western Red Cedar is used almost exclusively to make shakes, a major forest product of the Pacific Northwest. The Port Orford Cedar of southern Oregon and northern California provides another example of products made from splitting cedar: the arrow shaft. A major portion of all arrow shafts made come from this tree. Split products are only one group contributed by the four species of cedar, for much sawn lumber is taken also. Altogether, the Cedar Tree makes a major contribution to the economy of the Pacific Northwest.

Thunderbird (23 minutes)

While not a Puget Sound tribe, an interesting legend of the Quinalt, a Washington coastal group. A trip to the Olympic Peninsula making canoes, boating to a sea lion island and an Indian seal hunt. Available at the King County Film Library.

Wooden Box: Made by Steaming and Bending (33 minutes)

The Indians of the northwest coast developed woodworking to a degree unequaled elsewhere among aboriginal people. One of the specialties of these people was the steaming and bending of a single wood slab to form the four sides of a box, using no nails, screws, or glues. The boxes, some of which were elaborately carved, inlaid, and painted, were used for gifts, drums, storage, and transport. Follows carefully every stage of making the Kwakiutl box. Release date: 1962 EMC. Salish also made these boxes.

Teacher Information Sheet

SUGGESTED FILM LIST (cont'd)

Quillayute Story (25 minutes

This film, produced by Juel Lange of Bremerton and narrated from a script prepared by Dr. Erna Gunther, Director of the Washington State Museum and Professor of Anthropology at the University of Washington, shows in detail how the Quillayute Indians have adapted themselves to modern civilization. The old crafts are portrayed, but modern tools are used. The film treats of handicraft activities, sports, festivals, games, dances, fishing, agriculture, and religious worship. It is regrettable that a number of names are mispronounced. (Titania - 1951)

Indian Canoes Along the Washington Coast (18 minutes)

This film demonstrates how and with what tools a traditional Indian cedar dugout canoe is made. Also shown are highly competitive river and saltwater races, the stocking of a King Salmon fish hatchery, dancing and a salmon bake. Available at the King County Film Library.

Paddle to the Sea (28 minutes)

A film adaptation of Holling C. Holling's book, Paddle to the Sea. A hand-carved canoe is launched in the Northern forest and experiences many events before eventually making it to the sea. Available at the King County Film Library. Live action.

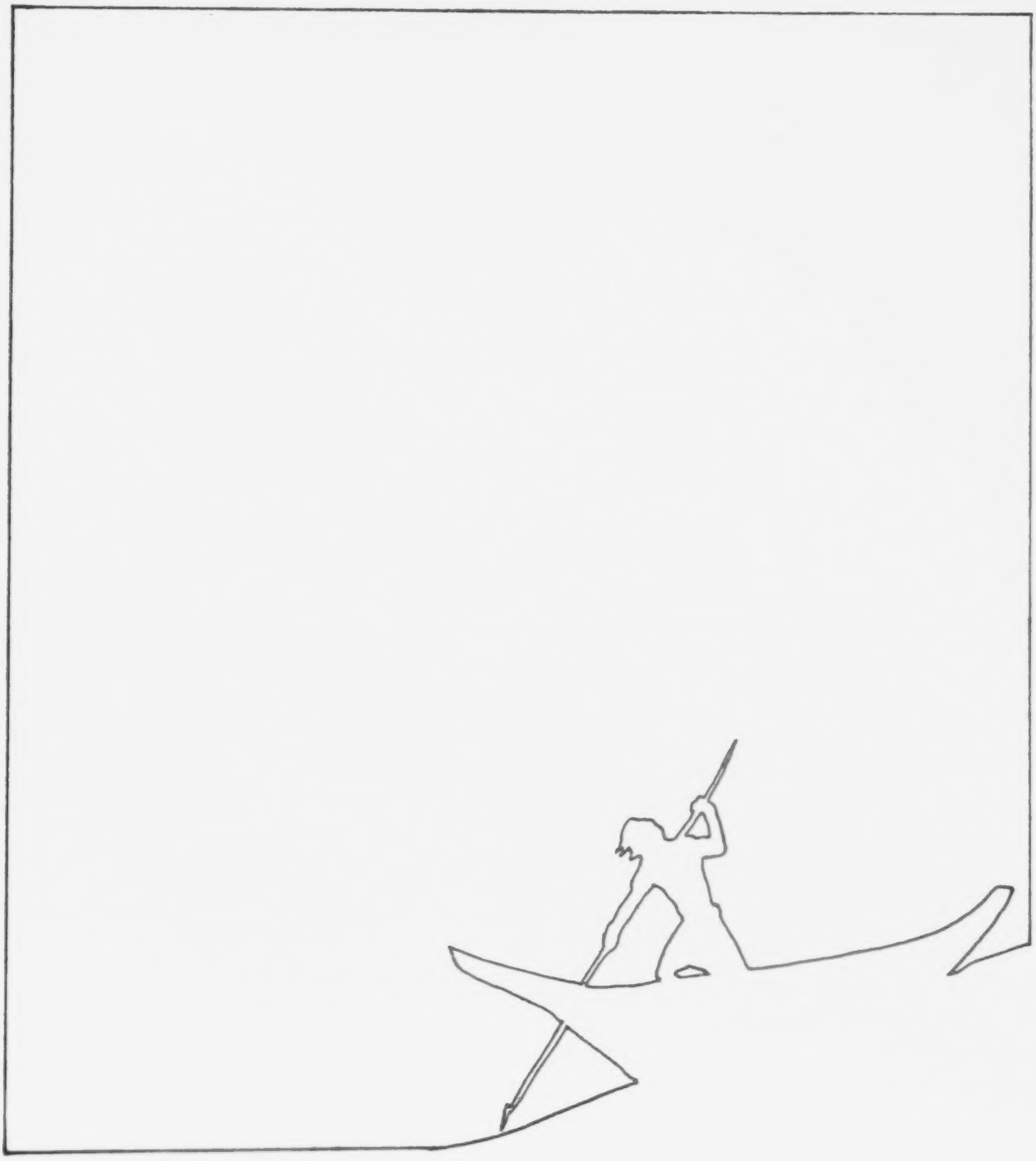
The Eagle and the Moon (5 minutes)

A Northwest Indian folktale with illustrations about a young prince who captured the sun and the moon in order to show how brave he was. The wicked raven stole these treasures but with the aid of the eagle, the sun and moon were replaced. This is why the eagle is "the sign of peace and good will". Animated. Available at the King County Film Library.

Recordings

Northwest (Puget Sound), Long-Playing Record AAFS L34, the Library of Congress, Music Division-Recording Laboratory, Archive of American Folk Song, Washington, D.C.

Eleven songs including a lullaby, love songs, gambling songs, religious songs both old and new, and some story telling songs. All are sung by Indians. The booklet which accompanies the recordings contains a background for the music by Dr. Erna Gunther, Professor of Anthropology at the University of Washington, and an analysis of the songs by Willard Rhodes, Professor of Music, Columbia University.



EVALUATION

VOCABULARY

BIBLIOGRAPHY

EARLY FISHING PEOPLES OF PUGET SOUND

EVALUATION

1. Map Activities

   From the following list, match these major features with their appropriate CAPITAL letters on the map.

   G Mount Baker

   A Hood Canal

   D Lake Washington

   B Whidbey Island

   J Mount Rainier

   H Puget Sound

   C Straits of Juan de Fuca

   F Olympic Mountain Range

   I Kitsap Peninsula

   E Vashon Island

2. On this same map, match the given tribal names with their corresponding locations shown by NUMBERS. Remember that these tribes lived near the rivers for which they were named.

   4 Skokomish

   1 Puyallup

   2 Nooksack

   6 Skagit

   3 Duwamish

   5 Stillaguamish

3. One chief food resource of the Puget Sound Indians was (fish, salmon).

4. Name three common fish in the Puget Sound area. a. (salmon)

   b. (cod)

   c. (halibut) (smelt, herring, trout, flounder)

5. Name three natural resources which were important to theses Indians and tell why.

a. (answers vary)

b.

c.

6. What style of house did these people live in during the winter?
(longhouse)

7. What time of year was the leisure time among Puget Sound Indians?
(winter)

8. What caused the young boy and the young girl in the old stories to travel to the Land of the Salmon?
(spirit power)

9. List three natural materials Indians used as fishing gear and what they were used for:

	Material	Use
a.	(answers vary)	
b.		
c.		

TRUE OR FALSE

F 1. Fishing technology used in Puget Sound today is quite simple and relies on natural materials.
T 2. The early Indians depended entirely on the natural environment for all their needs.
F 3. These Indians' fishing technology was not very successful.
T 4. The Indians made rope by twisting together strips of cedar bark.
T 5. Modern rope construction is still based on this principle.
T 6. Early Indian fishing lines and ropes were very strong.
F 7. Four Indian techniques for acquiring fish were nets, weirs, fish-farming, and spearing.
T 8. A bent wood hook was used to catch halibut.
T 9. In fast flowing streams, a variety of traps were used to catch salmon.
F 10. Salmon were taken in large numbers with fish rakes.

Vocabulary to match with meanings:

c	1. migrate	a.	a large brown seaweed
f	2. technology	b.	easily bent
e	3. weirs	c.	move to another region with the change in seasons
a	4. kelp	d.	a long arm of the sea
d	5. sound (as in Puget Sound)	e.	a kind of fence built across rivers to trap fish
b	6. pliable	f.	all the knowledge, skills, and materials used to make things necessary for a culture

ESSAY

1. Why were the Indians more successful at catching fish in Puget Sound than the early European explorers who came here?

   (had highly developed fishing technology for their specific environment)

2. Explain the relationship between how a rope is made and how strong it is.

   (twisting many fibers together increases strength)

3. Describe the First Salmon Ceremony and its importance.

   (great respect shown to the "Salmon People." Bones thrown back into water to ensure Salmon would return whole again and return to the land of the Salmon People.)

4. & 5. *For the final part of this examination the teacher should have two illustrations of fishing techniques (overhead transparencies). Have the students explain the fishing technique being illustrated*

EVALUATION NAME_____

1. Map Activities

   From the following list, match these major features with their appropriate CAPITAL letters on the map.

   _____ Mount Baker

   _____ Hood Canal

   _____ Lake Washington

   _____ Whidbey Island

   _____ Mount Rainier

   _____ Puget Sound

   _____ Straits of Juan de Fuca

   _____ Olympic Mountain Range

   _____ Kitsap Peninsula

   _____ Vashon Island

2. On this same map, match the given tribal names with their corresponding locations shown by NUMBERS. Remember that these tribes lived near the rivers for which they were named.

   _____ Skokomish

   _____ Puyallup

   _____ Nooksack

   _____ Skagit

   _____ Duwamish

   _____ Stillaguamish

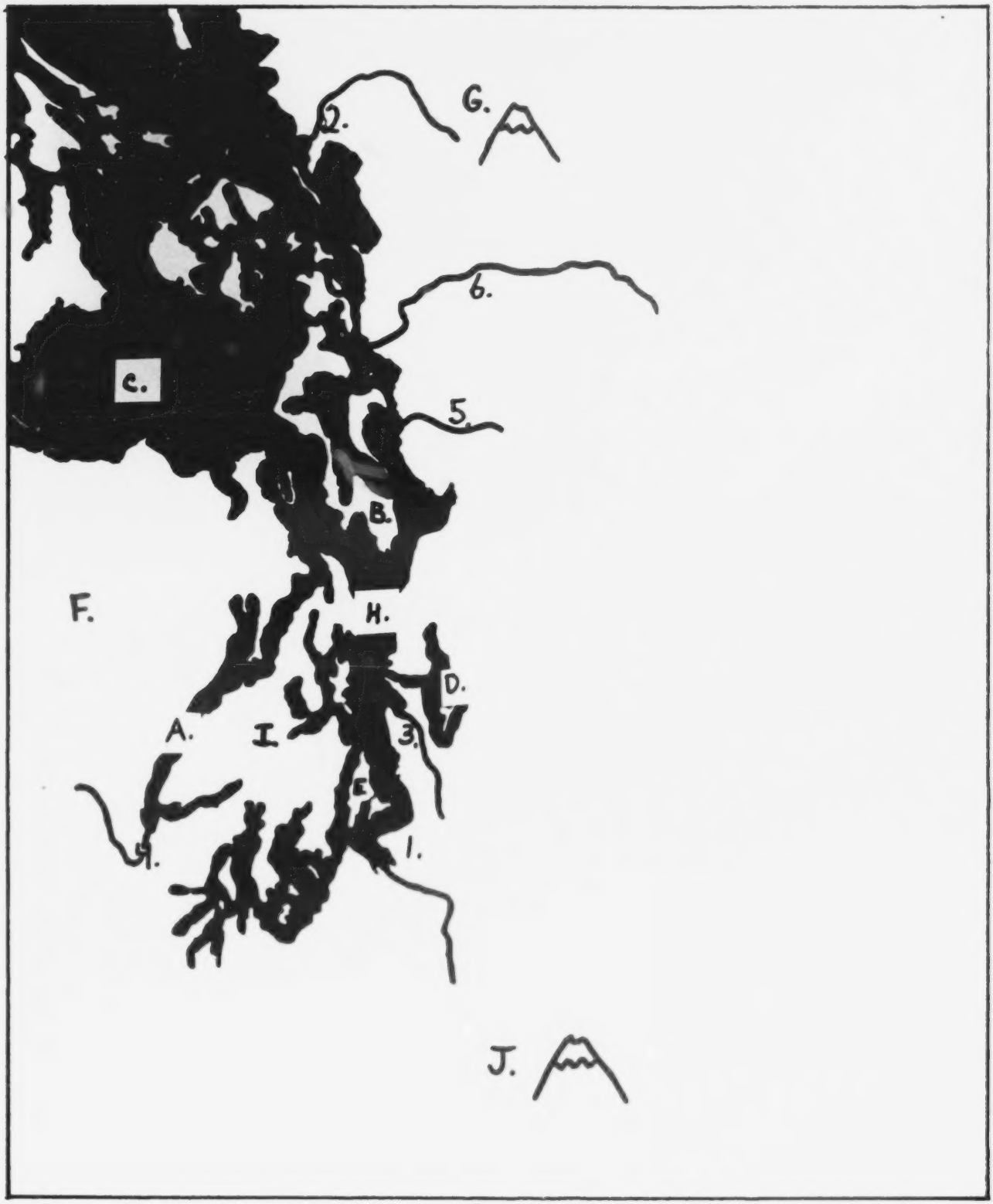
3. One chief food resource of the Puget Sound Indians was _____.

4. Name three common fish in the Puget Sound area. a. _____

   b. _____

   c. _____

EVALUATION - Map Activity NAME_____



NAME_____

5. Name three natural resources which were important to theses Indians and tell why.

a. _____

_____

b. _____

_____

c. _____

_____

6. What style of house did these people live in during the winter?

_____

7. What time of year was the leisure time among Puget Sound Indians?

_____

8. What caused the young boy and the young girl in the old stories to travel to the Land of the Salmon?

_____

9. List three natural materials Indians used as fishing gear and what they were used for:

	Material	Use
a.	_____	_____
b.	_____	_____
c.	_____	_____

TRUE OR FALSE

_____ 1. Fishing technology used in Puget Sound today is quite simple and relies on natural materials.
_____ 2. The early Indians depended entirely on the natural environment for all their needs.
_____ 3. These Indians' fishing technology was not very successful.
_____ 4. The Indians made rope by twisting together strips of cedar bark.
_____ 5. Modern rope construction is still based on this principle.
_____ 6. Early Indian fishing lines and ropes were very strong.
_____ 7. Four Indian techniques for acquiring fish were nets, weirs, fish-farming, and spearing.
_____ 8. A bent wood hook was used to catch halibut.
_____ 9. In fast flowing streams, a variety of traps were used to catch salmon.
_____ 10. Salmon were taken in large numbers with fish rakes.

NAME_____

Vocabulary to match with meanings:

_____ 1. migrate

_____ 2. technology

_____ 3. weirs

_____ 4. kelp

_____ 5. sound (as in Puget Sound)

_____ 6. pliable

a. a large brown seaweed

b. easily bent

c. move to another region with the change in seasons

d. a long arm of the sea

e. a kind of fence built across rivers to trap fish

f. all the knowledge, skills, and materials used to make things necessary for a culture

ESSAY

1. Why were the Indians more successful at catching fish in Puget Sound than the early European explorers who came here?

2. Explain the relationship between how a rope is made and how strong it is.

3. Describe the First Salmon Ceremony and its importance.

EARLY FISHING PEOPLES OF PUGET SOUND

VOCABULARY

1. geographical feature - *a natural feature of the land such as a mountain or lake*
2. Sound (as in Puget Sound) - *a long arm of the sea*
3. inlet - *narrow strip of water extending into a body of land*
4. bay - *a wide inlet of the sea*
5. strait - *narrow waterway connecting two large bodies of water*
6. tideland flats - *flat beach on which tides go in and out*
7. natural resource - *something found in the natural environment of use to man*
8. nettles - *a weed with stinging hairs*
9. kelp - *a large brown seaweed*
10. inhabitant - *a person that lives in a specific place*
11. longhouse - *a permanent house made from long planks of cedar*
12. sites - *locations*
13. trap - *container in which fish are caught*
14. reverence - *feeling of deep respect*
15. spirit power - *an inanimate being that serves as a helper in abilities to go through life*
16. synthetic - *artificial or produced artificially*
17. anadromous - *going upstream from the sea to breed*
18. migrate - *to move to another region*
19. spawn - *to produce and deposit eggs*
20. salmon - *common fish in Puget Sound*
21. halibut - *common fish in Puget Sound*
22. cod - *common fish in Puget Sound*
23. flounder - *common fish in Puget Sound*
24. herring - *common fish in Puget Sound*
25. smelt - *common fish in Puget Sound*

26. **weirs** - *fence set in water to catch fish*
27. **grid** - *evenly spaced lines, criss-crossed lines*
28. **lattice** - *open structure of crossed strips of wood*
29. **reef** - *a ridge of sand or rock near the sea*
30. **bent wood hook** - *a hook made by steaming and slowly bending wood*
31. **plaiting** - *interweaving*
32. **ubiquitous** - *present everywhere at the same time*
33. **pliability** - *easily bent, flexible*
34. **strand** - *fibers twisted to form a unit for further twisting into yarn or rope*
35. **yarn** - *a continuous strand of fibers*
36. **fiber** - *a thread*
37. **stone boiling** - *method of heating water to boiling by continually immersing red hot stones in the water*
38. **technology** - *all the knowledge, skills, and materials necessary to make things used by a culture*

NAME_____

VOCABULARY

1. geographical feature -
2. Sound (as in Puget Sound) -
3. inlet -
4. bay -
5. strait -
6. tideland flats -
7. natural resource -
8. nettles -
9. kelp -
10. inhabitant -
11. longhouse -
12. sites -
13. trap -
14. reverence -
15. spirit power -
16. synthetic -
17. anadromous -
18. migrate -
19. spawn -
20. salmon -
21. halibut -
22. cod -
23. flounder -
24. herring -
25. smelt -

NAME_____

VOCABULARY (cont'd)

26. weirs -

27. grid -

28. lattice -

29. reef -

30. bent wood hook -

31. plaiting -

32. ubiquitous -

33. pliability -

34. strand -

35. yarn -

36. fiber -

37. stone boiling -

38. technology -

EARLY FISHING PEOPLES OF PUGET SOUND

RESOURCE BIBLIOGRAPHY

Adamson, Thelma, Comp. Folk-Tales of the Coast Salish. Collected and edited by Thelma Adamson. N.Y., N.Y.: Kraus Reprint, 1969.

Allen, D. Indians of the Northwest Coast. Saanichton, B.C., Canada: Hancock House Publishers, Ltd., 1977.

Anderson, Eva. Chief Seattle. Caldwell, Idaho: Caxton Printers, 1944.

Amoss, Pamela. Coast Salish Spirit Dancing: The Survival of an Ancestral Religion, Seattle, Washington: University of Washington Press, 1978.

Ashwell, Reg. Indian Tribes of British Columbia. Saanichton, B.C., Canada: Hancock House Publishers Ltd., 1977.

Ballard, Arthur C. Some Tales of the Southern Puget Sound Salish. Seattle, Washington: University of Washington Press, 1927.

Browning, Robert J. Fisheries of the North Pacific. Anchorage, AK: Alaska Northwest Publishing Company, 1980 (Revised Edition).

Burner, Clifford J. "Pacific Salmon." Fishery Leaflet 563; U.S. Department of Interior, Washington, D.C., 1964.

Childerhose, R.J. and Trim, Marg. Pacific Salmon and Steelhead Trout. Seattle, Washington: University of Washington Press, 1979.

Coast Salish and Western Washington Indians. N.Y., N.Y.: Garland, 1974.

Cockran, George M. Indian Portraits of the Pacific Northwest. Portland, Oregon: Binfords and Mort, 1959.

Collins, June M. Valley of the Spirits: The Upper Skagit Indians of Western Washington, Seattle, Washington: University of Washington Press, 1980.

Curtis, Edward J. Salishan Tribes of the Coast, The Chimakum and the Quilliute, The Willapa. N.Y., N.Y.: Johnson Reprint Corporation, 1970.

Deloria, Vine, Jr. Indians of the Pacific Northwest, Garden City, New York: Doubleday and Company, Inc., 1977.

Drucker, Philip. Cultures of the North Pacific Coast. San Francisco, California: Chandler Publishing Co., 259 pp., illus, (ethnography).

Education Development Center, Inc., People and Technology, Social Studies Program, 15 Mifflin Place, Cambridge, Massachusetts 02138, 1972.

Eells, Rev. M. Ten Years of Missionary Work Among the Indians. (at Skokomish, Washington Territory, 1874-1884). Originally published 1886. Facsimile Reproduction 1972. The Shorey Book Store, Seattle, Washington, SJS #228, 26 pp. illustrated.

Elmendorf, William W., "Skokomish and Other Coast Salish Tales," Research Studies, Washington State University. Vol. XXIX, No. 1, March 1961.

_____. Structure of the Twana Culture. Pullman, Washington: Washington State University Press, 1960. (ethnography).

Emmons, Della Gould. Leschi of the Nisquallys. Minneapolis: T.S. Denison and Co., 1965.

The Famous Speech of Chief Seattle. Northwest Coast Museum Paper #1, The Northwest Coast Museum and Gift Shop, P.O. Box 366, Ocean Shores, Washington 98551.

Gibbs, George. Indian Tribes of Washington Territory. Fairfield, Washington: Ye Galleon Press, 1972, 56 pp.

Goddard, P.E. Indians of the Northwest Coast. Handbook series, No. 10. New York, N.Y.: American Museum of Natural History, 1945.

Gunther, Erna. Indian Life on the Northwest Coast of North America. Chicago, Ill.: University of Chicago Press, 1972.

Gustafson, Paul. Salish Weaving, Seattle, WA.: University of Washington Press, 1980.

Haeberlin, Herman and Gunther, Erna. Indians of Puget Sound. Seattle, Washington: University of Washington Press, 1952. (ethnography).

Hilbert, Vi. Ways of The Lushootseed People: Ceremonies and Traditions of Northern Puget Sound Indians, Day Break Star Press: United Indians of All Tribes Foundation, Seattle, WA., 1980.

_____. Huboo: Lushootseed Literature in English (privately distributed by author). Seattle, WA, 1980.

Kennedy, Dorothy and Bouchard, Randy. Sliammon Life, Sliammon Lands. Vancouver, BC: Talon Books, 1983

Kirk, Ruth. Northwest Coast Indian Land and Life, Pacific Science Center, Seattle, WA., 1979.

"Lillooet Stories," Sound Heritage. Vol. VI, No. 1, Provincial Archives of British Columbia, 1977.

Lyons, C.P. Trees, Shrubs and Flowers to Know in Washington, Toronto, Canada: J.M. Dent and Sons, Ltd., 1956.

McFeat, Tom. Indians of the North Pacific Coast, Seattle, WA.: University of Washington Press, 1966.

Mooney, James. Ghost Dance Religion, Shakers of Puget Sound. Originally published 1896, Reproduced by the Shorey Book Store, Seattle, Washington, 27 pp., SJS #3. (ethnography).

Olson, Ronald L. "The Quinault Indians." University of Washington Publications in Anthropology 6/1. Seattle, Washington: University of Washington Press, 1936.

Patterson, Lynn. An Introduction to the Study of Northwest Coast Cultures, Olympia, WA.: The Evergreen State College, TESC, 1977.

Phillips, James W. Washington State Place Names, Seattle, WA.: University of Washington Press, 1971.

Powell, Jay and Jensen, Vickie. Quileute, An Introduction to the Indians of La Push. Seattle, Washington: University of Washington Press, 1976.

A Report: Master Carver of the Lummi and Their Apprentices. Seattle, Washington: Craftsman and Met Press, 1971. Published by Whatcom Museum of History and Art, Bellingham, Washington.

Ruby, Robert H. and Brown, John A. Myron Eels and the Puget Sound Indians. Seattle, Washington: Superior Publishing Co., 1976.

Smith, Marian. The Puyallup - Nisqually. Columbia University Contributions to Anthropology, No. 32. New York: Columbia University Press, 940.

Stern, Bernhard J. The Lummi Indians of Northwest Washington. New York: AMS Press, 1969.

Stewart, Hilary. Indian Fishing, Vancouver, B.C.: J.J. Douglas, Ltd., 1977.

_____. Indian Artifacts of the Northwest Coast, Seattle, WA.: University of Washington Press, 1975.

Suttles, Wayne. "Post-Contact Change Among the Lummi Indians," The British Columbian Historical Quarterly, 18:29-102, 1954.

Swan, James. The Indians of Cape Flattery.

Swan, James G. The Northwest Coast. Seattle, Washington: University of Washington Press, 1972, illustrated, appendix, index.

Swanton, John R. Indian Tribes of the Pacific Northwest. Originally published by Smithsonian Institute, Bureau of American Ethnology, Bulletin 145, 1952; reprint available from the Shorey Book Store, Seattle, Washington, SJS #82, maps.

Thomas Burke Memorial Washington State Museum. Northwest Coast Indian Life. University of Washington, Seattle, Washington, 1976. (Description of Northwest Coast Sea Monster House at the Pacific Science Center.)

_____. The Indians of Puget Sound. University of Washington, Seattle, Washington.

Treaty Between the United States of America and the Dwamish, Suquamish, and Other Allied Tribes of Indiand in Washington Territory. (Treaty of Point Elliots). January 22, 1855. Ratified April 11, 1859. Facsimile reproduction 1966, The Shorey Book Store, Seattle, Washington, SJS #108.

Treaty Between the United States of America and the Makah Tribe of Indians (Treaty of Neah Bay). January 31, 1855. Ratified April 18, 1859. Facsimile reproduction 1966, The Shorey Book Store, Seattle, Washington, SJS #111.

Treaty Between the United States and the Nisqually and Other Bands of Indians (Medicine Creek). December 26, 1854. Ratified March 3, 1855. Facsimile Reproduction 1966, The Shorey Book Store, Seattle, Washington, SJS #108.

T.T.T. Project and Center for Indian Teacher Education, The History and Culture of the Indians for Washington State. University of Washington, Seattle, Washington, 1975.

Turner, Nancy. Food Plants of British Columbia Indians, Part 1: Coastal Peoples, British Columbia Provincial Museum, Victoria, British Columbia, 1975.

_____. Plants in British Columbia Indian Technology, British Columbia Provincial Musuem, Victoria, British Columbia, 1979.

United Indians of All Tribes Foundation, Fisherman On the Puyallup, Seattle, Washington: Day Break Star Press, 1978.

Washington State Office of Environmental Education, Clean Water, Streams and Fish, Superintendent of Public Instruction, Olympia, Washington.

Washington State Superintendent of Public Instruction, Understanding Indian Treaties As Law, Olympia, Washington, 1978.

Waterman, T.T. Indian Notes and Monographs - Notes on the Ethnology of the Indians of Puget Sound. N.Y., N.Y.: New York Museum of the American Indian, 1973. (ethnography).
Wells, Oliver N. Salish Weaving: Primitive and Modern. Oliver N. Wells, Sardis, British Columbia, 1969.